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Out of 500 cuttings, 400 are reported to have struck and to be thriving. The put out on raised beds (with a roof of split bamboos, and sheltered on three sides b ferns) in March, April, and May, and watered once in two days; water for this p having been made to flow around each bed by excavating a small drain from the n watercourse, as is the custom in the betel gardens of the Karens.

5. The first bed was well mixed with sand according to the Ootacamund plan, but third of the cuttings failed. In the other beds, without any admixture of sand, e cutting took root, showing the facility with which the *succirubra* variety can be propag in this Province.

6. The next operation will be that of transplanting these cuttings to the main plan tions. In this way, and by means of seed, it is hoped that the ent' e area, at both P madoe and Than Toungyee will, within a year or two, be stocked with plants, from whi a large and continued supply of cuttings (as well as seed eventually) will be obtainab for distribution yearly to the Karens, and for the formation of similar plantations in th other Hill Districts of the Province. Care will have to be taken in the selection c sites for these plantations, and the attention of divisional officers will be drawn to thi subject.

7. As far as is known at present, eligible sites will probably be found west of Prome, near the road leading over the Arracan Yoma, and in the vicinity of the Salween River, at no great distance from Moulmein.

8. If at these plantations every encouragement is afforded the Karens to study the cultivation of chinchona, there can be no doubt that this valual 'e plant will, ere many years, be found in possession of these people on all the higher hills of the Province.

MEMORANDUM from the Assistant Secretary to the Chief Commissioner of British Burmah, to the Secretary to the Government of India, Public Works Department, 20th August 1870.

COPY of foregoing transmitted to the Government of India in the Public Works Department, for information with reference to letter No. 405F, dated 29th July 1870.

2. The Chief Commissioner is quite satisfied with arrangements made by Captain Seaton, and does not consider that, for the present, any further establishment is necessary than that entertained by the Conservator, and referred to in his letter No. 33A, dated 7th June 1870, of which a copy was communicated to the Government of India.

3. The Chief Commissioner sees no object whatever in transferring the charge of these plantations to any other department.

Enclosure 2, in No. 2.

From the Secretary to the Government of India, Public Works Department, to the Chief Commissioner of British Burmah; dated Simla, 21st September 1870.

IN acknowledging the receipt of your endorsement, No. 462—15 F., dated 20th ultimo, I am directed to inform you that the additional facts reported relative to the cultivation of chinchona in British Burmah, are satisfactory.

2. The Governor General in Council approves of your determination to leave the charge of these plantations with the Forest Department, and it will now be necessary that the establishment entertained for this purpose should be regularly sanctioned. I am accordingly to request that, as soon as it has been decided what establishments should be permanently entertained for this work, a tabular statement in the usual form may be submitted for the sanction of the Government of India.

3. In paragraph 6 of the Conservator's Report, forwarded with your endorsement under reply, the formation of other plantations in the Hill Districts of Burmah is mentioned. It appears to his Excellency in Council that the operations of Government in this respect should remain concentrated in one or two localities, where sufficient land can be obtained to secure the success of the experiments on a suitable scale.

4. It will probably be expedient to keep the outlay on these plantations distinct from the outlay on account of the Forest Department. This may be provided by the introduction of a separate sub-head in the budget and accounts of the Forest Department. The Accountant General and the Conservator should suggest the needful arrangements in this respect.

— No. 3. —

(No. 118—Public.)

From the Secretary of State for India to the Government of India.

My Lord, India Office, 22 December 1870.

THE accounts of the progress of the experimental introduction of chinchona ltivation into British Burmah, forwarded with your Excellency's Despatches, ated 12th August (No. 94), and 4th October (No. 108) 1870, are very satis- ctory; I trust that the anticipations of the Conservator of Forests in British Burmah will be realised, and that before many years the febrifuge will be within the reach of the people on all the higher hills of the Province.

I have, &c.
(signed) *Argyll.*

— No. 4. —

(No. 128—Public.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Fort William, 14 December 1870.

IN continuation of our Despatch No. 108, dated the 4th October last, we transmit, for your Grace's information, copy of further correspondence* on the subject of the experimental introduction of chinchona cultivation into British Burmah.

We have, &c.
(signed) *Mayo*, &c.

Enclosure 1, in No. 4.

From the Officiating Secretary to the Government of India, to the Chief Commissioner of British Burmah.

Sir, Fort William, 16 November 1870.

I AM directed to acknowledge your Secretary's letter, No. 612—15 F., dated 10th ultimo, replying to this office No. 549 F., dated 21st September last, on the subject of the cinchona plantations in Burmah.

2. Under the circumstances explained, the Governor General in Council agrees to allow the present temporary arrangements with regard to establishments to continue to the end of 1871-72.

3. Until a number of Burmans or Karens have been thoroughly trained for the work, and until sufficient experience has been gained in the cultivation of chinchona in Burmah to make sure of success at moderate cost, the Governor General in Council does not deem it prudent to permit the establishment of plantations in other localities than in the hills east of Toungoo, which seem to be favourably situated as regards facilities for an efficient supervision. All proposals to establish fresh plantations in other places at Government expense should, in the first instance, be submitted for sanction.

I have, &c.
W. A. Crommelin, Colonel, R.E.,
Officiating Secretary to the Government of India.

Enclosure 2, in No. 4.

From Lieutenant Colonel *A. Fraser*, C.B., R.E., Secretary to the Chief Commissioner of British Burmah, in the Public Works Department, to Secretary to the Government of India, Public Works Department, 10th October 1870.

I AM directed by the Chief Commissioner, British Burmah, to acknowledge receipt of letter No. 549 F., dated 21st September 1870, transmitting the remarks of the Government of India on a late report on the chinchona plantations of this Province, furnished by the conservator.

2. In the 2nd para. of the letter it is remarked, "It will now be necessary that the establishment entertained for this purpose should be regularly sanctioned," and a request is preferred for the submission of the usual tabular statement. On this, General Fytche would remark, that the plantations are quite in their infancy and are of very small dimensions as yet, and that until the existing areas have been much more extended, it would not be easy to determine the strength of any fixed establishment. He would therefore request the Government of India to let matters go on as at present for another year or so, when this administration will be in possession of more data on which to base an application for a fixed establishment.

3. Referring to the 3rd para. of the letter under reply, the Chief Commissioner would desire to say that his policy generally regarding concentration of plantation operations is quite *en rapport* with the views of his Excellency the Governor General in Council. But with regard to the development of chinchona plantations throughout the Province, General Fytche has reason to believe that a different policy may be followed up with advantage. If plantations of chinchona can be formed on the Arrakan Yoma Range and the hills bordering the Salween River in the Tenasserim division, it is believed they may prove of immediate use to the adjacent Hill people. General Fytche understands that the plant can be prepared in a rough way and used as a febrifuge by those growing it, without having to send it away for chemical manipulation and conversion into the form in which it is generally used. The conservator will be asked to report upon this matter after he has placed himself in correspondence with the Government quinologist at Madras. For the present, however, the Chief Commissioner does not desire to plant chinchona in other parts of the Province.

4. The remarks in the 4th para. will have the Chief Commissioner's immediate attention.

— No. 5. —

(No. 19—Public.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Fort William, 15 February 1871.

WE transmit for your Grace's information a copy of the correspondence noted on the margin, regarding the manufacture of quinine in India, together with a copy of our Resolution, dated the 2nd instant, from which it will be seen that we have appointed a Commission to inquire into and report on the whole subject of the best mode of utilising the chinchona bark, of which a considerable quantity is now produced in the Government plantations in Sikhim.

From Bengal, dated 21st February 1870, and enclosures.
From Bengal, dated 4th November 1870, and enclosures.
To Bengal, dated 16th December 1870.
To Bengal, dated 24th December 1870.
From Bengal, dated 15th November 1870, and enclosures.
To Bengal, dated 24th December 1870.
To Madras, dated 24th December 1870.
From Madras (Telegram), dated 19th January 1871.
To Bengal, dated 21st January 1871.
From Bengal, dated 23rd January 1871.
To Madras (Telegram), dated 24th January 1871.

2. The Report of the Commission, and the orders that may be passed on it, will be communicated to your Grace in due course.

We have, &c.
(signed) *Mayo*, &c.

Enclosure 1, in No. 5.

From *H. S. Beadon*, Esq., Officiating Under Secretary to the Government of Bengal, to *E. C. Bayley*, Esq., Secretary to the Government of India; dated, Fort William, the 21st February 1870.

1. From Dr. T. Anderson, Superintendent of the Botanical Gardens, on leave in England, dated the 20th November 1869, and enclosure.
2. From the Officiating Superintendent of the Botanical Gardens, No. 165, dated the 10th February 1870.
3. To the Officiating Superintendent of the Botanical Gardens, No. 476, dated the 21st instant.

I AM directed to forward, for the information of His Excellency the Governor General in Council, the accompanying copy of a correspondence noted on the margin, relating to a proposal for the manufacture of quinine in Bengal.

2. The Lieutenant Governor has sanctioned the expenditure of the sum of 2,500 rupees applied for by the Officiating Superintendent of the Botanical Gardens to procure machinery for the experiment, the charge being met from the allotment for contingencies in the Budget estimate of the Superintendent for the current financial year, as proposed in the20th paragraph of his letter of the 10th instant.

3. His Honor has also authorised Mr. Clarke to proceed to Madras for the purpose of holding an interview with Dr. Broughton.

From *T. Anderson*, Esq., M.D., Superintendent of the Botanical Gardens, Calcutta, and in charge of Chinchona Cultivation in Bengal, to the Secretary to the Government of Bengal; dated, Kew, the 20th November 1869.

I HAVE the honour to forward to you, for submission to his honour the Lieutenant Governor of Bengal, a letter which I wrote last January narrating the result of some experiments I made at Darjeeling in the attempt to separate the chinchona alkaloids in a cheap and coarse state from young chinchona bark. The letter was not then despatched to you because, immediately after it was written, the state of my health would not allow of my carrying out part of the object I had in view in writing the letter, viz., a journey to Ootacamund. But the main object of the letter, the utilisation of the young bark from the trees in the Government plantations at Darjeeling by the manufacture from them of a cheap but powerful febrifuge well suited for use in Native hospitals and charitable dispensaries, is more important than ever. Mr. C. B. Clarke, the officer who is in charge of the Botanical Gardens during my absence, has also had this subject forced on his consideration by the very advanced condition of the chinchona trees at Darjeeling. It is evident that they will almost immediately require to be pruned by the lopping off of branches from the largest trees to admit air and light and to give room.

Mr. Clarke is aware, I believe, that such young bark will be almost unmarketable for the reason stated in my letter enclosed, viz., that crystalline salts of the alkaloids cannot be prepared from such bark, at least in any quantity, and he has therefore been endeavouring to prepare a rough and cheap form of the alkaloids from the bark of the branches.

Besides the two preparations I have described in the accompanying letter, there is a third form in which the alkaloids might be separated, and which may be cheaper and easier of manufacture from young bark than either my grey powder or the one made by Mr. Broughton.

I am indebted to my friend Dr. DeVrij, of the Hague, one of the most distinguished quinologists of the day, for the account of the process by which this third substance can be prepared. The young undried (fresh) bark should be macerated in water (cold), strongly acidulated by hydrochloric acid for about 48 hours; the water is after that to be strained off. The rough alkaloids are to be precipitated from this acid infusion of the bark by carefully adding lime (milk of lime). The precipitate, after removal of the supernatant liquid, should be thoroughly well washed with cold water, pressed gently and well dried.

This precipitate consists of all the alkaloids present in the bark of the species, and dried bark can be used for this preparation as well as in any other process; but if the manufacture is carried on near the plantations, it is better to use fresh bark than to spend time and labour in drying it. I regret that I am at present unable to forward the specimens of the preparations referred to in my letter of last January, as they have been given to Dr. Christison, Professor of Materia Medica in the University of Edinburgh, who has offered to examine and report upon them.

It does not seem necessary that I should make any suggestion about conducting further experiments, beyond saying generally that the practical result of these experiments and which I have always had in view; the extensive use of all the alkaloids found in one species of bark unseparated from each other, will be most readily attained by the experimental administration in hospitals of all these three substances: Mr. Broughton's powder, my grey powder, and that obtained by Dr. DeVrij's simpler process.

Such experiments will be necessary in the first place to fix the proper dose of the new preparation; and if the result is also favourable as regards the cure of fever, as no doubt it will be, there will be no difficulty in introducing these cheap preparations of the alkaloids into medical practice in India.

From *T. Anderson*, Esq., M.D., Superintendent of the Botanical Gardens, and in charge of Chinchona Cultivation in Bengal, to the Secretary to the Government of Bengal; dated Calcutta, the 14th January 1869.

I HAVE the honour to report the result of some investigations I have recently made at the chinchona plantations near Darjeeling, with the view of discovering a cheap process for separating the alkaloids from the chinchona bark. I undertook these experiments because I am convinced that one of the main objects in forming plantations of chinchona would be attained if a cheap preparation of the alkaloids could be made, and especially if such a form of the medicine could be procured from young bark. The investigations of Mr. Howard, Dr. DeVrij, and Mr. Broughton, the Quinologist in the Neilgherries, prove that alkaloids in the young bark are not in that highly elaborated condition which they attain in mature bark, as is proved by the small per-centage of crystallisable combinations of the alkaloids with acids procured from young barks, although the presence of a considerable amount of alkaloids may have been discovered by the usual tests. It is almost certain that the alkaloids in the uncrystallisable state will prove quite efficacious in curing fevers.

I have lately prepared two substances from the young chinchona bark grown at Darjeeling; these contain all the alkaloids mixed with some extraneous matter in different degrees. The first of these, the brown viscid substance in the small jar, is called quinium. It is fully described by Mr. Markham, in his letter to the Government of Madras, dated 16th January 1866, as "extrait alcolique de quinquina a la chaux." I prepared it very much in the same manner as described by Mr. Markham. The process I followed was to macerate about 10 lbs. of dried coarsely powdered bark with half its quantity of lime, moistening the mixture with a small quantity of water. The mixture was frequently stirred during the process of maceration. Spirit obtained by distilling the common weak spirits manufactured in the hills from *eleusive coracona* was then added to the mixture, which was boiled for half-an-hour and then strained. This clear strained spirit was placed in a small still, and distilled until the spirit was removed; the residuum was then carefully evaporated in a water bath until it acquired the consistency of the specimen now sent. The native spirit from *eleusive* is so weak that, on distilling it, water only slightly flavoured with spirit comes over after the first half of the original quantity has been procured. However, about three-fourths of the alcohol used to dissolve the alkaloids are recovered by distillation.

The slaked lime I used in this process is the lime in common use at Darjeeling, and is collected from the sides of certain small streams in the hills which deposit carbonate of lime when they issue from the hill sides. This carbonate of lime is burned in kilns on the spot where collected.

I have treated some cases of fever with this substance (quinium), and I find that it is a powerful febrifuge, as indeed it must be, as it contains all the alkaloids present in the bark. It dissolves with some difficulty in cold water, but readily in warm water, and this solution does not become turbid on cooling.

Notwithstanding its undoubted efficacy as a febrifuge, it would, I think, be generally objected to by medical men both on account of its appearance and the difficulty the dispenser would have in accurately measuring it.

The second substance (a grey powder) consists of the alkaloids in an impure and non-crystalline condition. Mr. Markham also refers to this preparation in the letter I have already quoted; but his knowledge of this preparation of the alkaloids was derived from Dr. DeVrij, who thought this powder would be "more conducive to the objects in view than quinium."

The process apparently by which Dr. DeVrij separated the alkaloids in this form is mentioned at page 227 of the last Blue Book on chinchona, published in June 1866.

I obtained the grey powder forwarded with this letter by following a different process from that described by Dr. DeVrij. Young bark, about 16 months old, was dried and coarsely pounded in a large wooden mortar similar to those used by natives for husking rice; the powdered bark was boiled in water in which a certain proportion of solution of caustic soda had been mixed. The dark-coloured liquor, the result of this boiling, was thrown away, and the bark was well pressed and slightly washed with cold water, and again boiled in an alkaline water similar to the first, and the result of this second boiling was also thrown away. The bark after this second boiling was thoroughly well washed with cold water and pressed. The bark, now thoroughly decolorised, was then boiled in water strongly acidulated with sulphuric acid, pressed after thorough boiling, and the liquor kept. This process was repeated a second time. These acid liquors were then mixed together and evaporated by slow boiling to one-fourth of their bulk and then filtered. To the filtered cold liquor solution of caustic soda was carefully added until a strong alkaline action was obtained, and until no more precipitate resulted from the addition of the soda solution. The dark grey precipitate (impure alkaloids) was collected on a cloth, well washed, carefully dried in a water bath, and reduced to powder.

Since writing the above, I have received from the Medical Department a yellowish grey powder closely resembling the powder I prepared, and, like it, containing all the alkaloids in a non-crystalline form. This powder was prepared at Ootacamund, by

Mr. Broughton, Government quinologist, from bark grown on the Neilgherry plantations, and was sent to Bengal for experiment in the hospitals as to its efficacy as a febrifuge. The chinchona plants at Darjeeling are now so numerous and vigorous that a considerable quantity of young bark could be at once obtained from them by pruning and lopping off all the superfluous branches, treatment which would render the plants symmetrical and advance their growth as trees. From my knowledge of the chemistry of the chinchonas, I am unable to recommend now on my own responsibility a method by which these barks could be utilised, but I feel certain that either my grey powder or Mr. Broughton's somewhat different and probably superior one could soon be made on such a scale at Darjeeling as to supply a considerable amount of a valuable and very cheap febrifuge as efficacious as expensive sulphate of quinine to the native hospitals in Bengal. I know quite enough of the process of obtaining the alkaloids from the bark to benefit from a consultation with Mr. Broughton, and afterwards to recommend to Government and to inaugurate some cheap and simple manufactory of the alkaloids in the rough state. I have, therefore, to request that I may be permitted to proceed to Ootacamund and spend eight or ten days there to consult with Mr. Broughton and observe his process in the laboratory.

From *C. B. Clarke*, Esq., M.A., Officiating Superintendent, Botanical Gardens, and in charge of Chinchona Cultivation in Bengal, to the Secretary to the Government of Bengal; 10th February 1870.

I BEG leave to acknowledge the receipt of your Memorandum, No. 190, of 20th January 1870, enclosing the letter of Dr. T. Anderson concerning quinine manufacture at the Government plantations near Darjeeling; also, of your Memorandum, No. 225, of 25th January 1870, accompanying the copy of the Quinology of the East Indian plantations, by John Eliot Howard.

2. The work of Mr. Howard should more strictly have been entitled the quinology of the plantations of the Peninsula of India, as the facts discussed are drawn exclusively from the peninsula plantations, and the conclusions, though stated as general, do not in many important points hold good as regards the Bengal plantations.

For example, on page 1 of Part I., Mr. Howard opens the discussion of the proper elevation at which to grow chinchonas in India in these words,—

"Recent observations on these points may save the apparently useless attempt to cultivate these plants at a level below 4,000 feet above the ocean."

Upon this I remark that the whole of the 1,000,000 plants of *C. succirubra* at Rungbee are below that level. The species appears to thrive best at about 2,000 feet elevation, and grows very well down to the river at 800 feet elevation. *Chinchona calisaya* grows best at similar elevations, but on the whole will not grow so high as *C. succirubra*. In short, the only plants in the Rungbee plantations which are *above* 4,000 feet elevation are some *C. officinalis*, which are being tried at this higher level as a last experiment, whether the species can be profitably cultivated at all at Rungbee.

3. The plantations at Rungbee appear from the reports to be fully as large and well advanced as the Neilgherry plantations; and, though the Rungbee plantations are several years younger than the Neilgherry plantations, the specimen bark sent home from Rungbee is considered (as I learn from Dr. T. Anderson) superior in quality to any that has ever been sent home from any other part of Asia. Hence the limitation, which I assert ought to have been made in the title of Mr. Howard's valuable work, is a material one.

4. From the 6th August 1869, up to the present date, I have been almost incessantly employed on experiments with *C. succirubra* bark up till 1st November at Rungbee, subsequently in Calcutta, and I wish to state that any success which has attended my efforts is due to my friend Mr. Blandford, the meteorologist to Government, who is an experienced chemist. Before commencing experiments, I had the advantage of his advice. During my experiments at Rungbee, I was in constant communication with him, and referred each difficulty as it occurred to him; and in Calcutta, Mr. Blandford has not only allowed me the use of his laboratory and apparatus, but has devoted to my instruction and assistance many hours weekly during the last three months.

5. In his Budget estimate for 1869–70, Dr. T. Anderson estimated that the thinnings and prunings of the Rungbee plantations during the cold weather would produce 1,000 rupees' worth of bark, and he estimated that the drying, packing, and carriage of this bark to London for sale would cost 1,000 rupees.

6. Dr. T. Anderson, as appears by his letter, above quoted, is now desirous that the attempt to manufacture should be commenced at Rungbee. This is, I believe, a very general wish with the Medical Department in Bengal; and Dr. Ewart, in his pamphlet

pamphlet on the subject, has urged that the quinine should be manufactured by Government, rather than that the bark should be sent for sale to London.

7. The manufacture of the crystallised sulphate of quinine now in general use (so far as can be afforded by its very high price) consists of two stages. The bark is treated with dilute acid, which takes up the alkaloids contained in it, and also a certain quantity of colouring matter, resin and other rubbish, which quantity is considerable in *C. succirubra* bark, the only bark which for some years will be produced in quantity at Rungbee. The acid infusion is neutralised by an alkali, when the quinine alkaloids are precipitated, accompanied with more or less of the rubbish. These precipitated alkaloids (more or less impure) are known as the result of the first stage of the manufacture. The second stage is in actual manufacture, generally performed by washing out of these precipitated alkaloids (by strong alcohol) the quinine, and evaporating the alcohol.

8. It will be seen from Dr. Broughton's letter, forwarded to me by the Government of Bengal, No. 3,601, of 1st November 1869, that there are reasons why the alcoholic process cannot be well performed at Rungbee, and that some "unusual process must be employed." Dr. Broughton has been (he says) for some time engaged in devising a new process, but has not, as yet, carried his experiments to such a result as would justify him in making it public.

9. It is in contemplation of this state of the case that Dr. T. Anderson now advocates the manufacture of a rough hospital quinine at Rungbee, by which he means the production of the precipitated alkaloids in a more or less impure form.

10. Before I commenced my experiments I addressed the inspector general of hospitals on this subject. He is of Dr. T. Anderson's opinion upon this question, and is desirous to try the rough alkaloids in hospital practice.

11. It seems now pretty well settled (*vide* last edition of the London Pharmacopœia, Dr. T. Anderson's letter, and Dr. Broughton's Chinchona Report of August 1868) that the other quinine alkaloids are valuable febrifuges and operate pretty much as quinine, but are less powerful; roughly it may be said, that two grains of chinchonidine are equal in all respects to one grain of quinine. The action of chinchonine and the other minor quinine alkaloids is less satisfactorily made out, but in the *C. succirubra* bark usually 75 per cent. of the alkaloids present are either quinine or chinchonidine.

12. If, therefore, the medical practitioner dissolves the precipitated alkaloids in dilute sulphuric acid, he can give the same dose as is given by diluting in acid the crytallized sulphate of quinine. But I must here state that several doctors of experience in the medical department object that the crystallized sulphate is pure, and that they can be sure of the dose they give to a grain; whereas in the precipitated alkaloids the proportions of cinchonidine, and even more inert alkaloids, will be variable and doubtful.

13. This objection to the putting out of the precipitated alkaloids from the Government plantations is entitled to some weight; but *contra*, I doubt whether the medical officer is, at present, at all sure of the dose of quinine he gives. Cinchonidine is about one-third the value of quinine, and the crystals of cinchonidine are exceedingly like those of quinine. There is really very little quinine in general use that is not at present deeply adulterated with cinchonidine, and I doubt whether any amount of chemical knowledge will enable the medical officer to detect the per-centage of cinchonidine present, unless he were provided with quite a different laboratory apparatus from that generally at his command.

14. Further, should the production of the precipitated alkaloids be carried on upon a large scale hereafter, it would be possible to thoroughly mix a large quantity, analyse a sample, and then issue it with the per-centage of quinine and chinchonidine certified on the labels of the bottles.

15. With these views I engaged in my own experiments with Rungbee *C. succirubra* bark, and have confined myself mainly to the first stage of manufacture. I submit with this letter a sample, No. 1, of the precipitated alkaloids which corresponds to the "grey powder" mentioned by Dr. T. Anderson. This grey powder is completely soluble in dilute acid, and is very clear, both of chinchona red and of resin. By treating it with scalding water and a little sulphuric acid, and allowing it to cool, a portion of the alkaloid crystallises (this is the sample, No. 2, submitted), and the remainder may be re-precipitated (this is sample No. 3).

16. These samples are merely submitted as specimens of the products mentioned, for they are principally made from American *succirubra* bark, as I have lately been in Calcutta without Rungbee *succirubra* bark. The portion of these samples made from Rungbee *succirubra* bark was exactly similar to that obtained from the American *succirubra* bark, but in much smaller quantity in proportion to the weight of bark used.

17. Dr. Ewart has well pointed out that by working up the bark at Rungbee not only would the expense of packing the bark and its carriage to England be saved, but there would be a great economy in fuel. (There is much boiling in the early stage of the manufacture.) At present at Rungbee our very excellent charcoal only costs us five annas per maund; and the high tree forest, reaching from the upper level of cultivation (5,000 feet)

on the chinchona reserves to the summit of Sinchal, will furnish charcoal for a very long series of years, unless Government resumes these forests from the chinchona reserves for other purposes.

18. On the other hand, Mr. Howard has devoted himself for years to the manufacture of quinine, and it must not be expected that by working out in the jungle with Nepalese coolies the same money value will be got out of a pound of bark as could be got out of that pound by an accomplished European quinologist. Much less can it be expected that *at first* any approximation to such a standard can be attained. The impression which I have gained from my protracted experiments is, that the successful manufacture of quinine (like most other manufactures) is not any particular secret or the adoption of any particular route, but is the result of the application of skilful manipulation and minute experience at each step and turn of the work. In asking Government, therefore, to authorise me to commence the manufacture there with the present season's thinnings and prunings, I should consider my recommendation would be justified by the result. If a product should be obtained that can just be serviceably employed, it might be then confidently anticipated that improvement step by step would follow.

19. In case the precipitated alkaloids should ultimately not prove satisfactory to the medical profession, and assuming, moreover, that we never discover how to produce therefrom economically a pure crystallised sulphate of quinine in sufficient quantity, it will nevertheless probably be found most profitable to Government to manufacture the precipitated alkaloids at Rungbee, and send them for sale to London rather than the bark itself. Not only is fuel and rough labour cheap at Rungbee, but the expenses of carriage will be reduced to about one-fiftieth of that of the bark.

20. The prunings and thinnings of this season at Rungbee are now proceeding, and are estimated to produce about 1,500 lbs. of bark, of which nearly 1,000 lbs. will be bark from wood three or four years old, the remainder from second year bark. I am sending two maunds of the very best for sale in London. The rest I propose to work up experimentally myself at Rungbee. I therefore now ask Government to sanction the expenditure from the current year's contingency of 2,500 rupees for the requisite machinery. The sanction is needed in point of form, as there is an ample margin of contingency available to meet the charge; but I feel that the embarking in a manufacture of this magnitude and difficulty should have the express sanction of Government.

21. Besides the expense of machinery, the experiment will cost Government the loss occasioned by not selling the bark; for though Dr. Anderson (as above stated) in his budget estimate gave the cost of drying, packing, and carriage to be as much as the bark would fetch, the 1,000 lbs. of higher class bark would doubtless produce, if sold in London, a large profit over those expenses.

22. I propose, if this experiment be sanctioned, to work up the year's crop at Rungbee into a grey powder, similar to the sample transmitted. This grey powder can afterwards partly be issued to the Inspector General of Hospitals, partly be sold in London, and partly be experimented on in Calcutta, for production of the crystallised sulphate therefrom.

23. Regarding the process to be followed, I have travelled over most of the ground pointed out in Dr. T. Anderson's letter, and I consider that the same process cannot be followed exactly with all bark.

In the bark from very young shoots the quantity of resin present is large, and I have been unable to deal with it at all except by following Dr. T. Anderson's plan of a previous boiling in alkaloid water. This, however, doubtless sacrifices a per-centage of the small quantity of quinine present on such bark; and Mr. Blanford greatly doubts whether the bark from young shoots will ever prove remunerative to work up.

24. I have been exceedingly desirous of working the bark cold altogether, as suggested by Dr. T. Anderson. There is great advantage in working cold, not merely in saving of fuel and labour, but in diminishing the quantity of the vexatious resin (as Dr. Broughton calls it) and colouring matter. But I am sorry to say that bark, after repeated and protracted infusions, has produced with me large per-centages of the alkaloids by decoction.

25. In the matter of infusion, I should therefore, as Dr. Broughton says, "proceed according to circumstances." With the better class of Rungbee bark of the present year, I should be inclined to infuse it first and decoct it afterwards; interposing between the infusions and the decoction an alkaloid treatment in those cases where the resin proves very vexatious.

26. On another important point, I do not propose for the present season to adopt Dr. Anderson's suggestion, viz., that of working the bark fresh. It has been stated that bark gives up its quinine more readily in a fresh state. I have tried the fresh bark, and I have not obtained a good result. I have little doubt that this failure was because my bark was not cut fine enough. Indeed, I could see that the dilute acid discolours the bark hardly one-fortieth of an inch deep. To cut up 1,500 lbs. of bark very fine would require

require special machinery, the expense of which I wish to avoid for the current year's experiment, especially, as by drying the bark in the present drying-house, it can then easily be pounded in a mortar to a very great fineness.

Moreover, there will always be a great practical difficulty in working the fresh bark on a large scale. The fresh bark cannot safely be stored, as it soon ferments. Now the bark only "rises," that is, is fit for stripping at certain times, so that in the factory, if we work fresh, we should be compelled to provide a very large quantity of machinery indeed, so as to be able to take in hand at once the bark that would come in upon us irregularly in masses. By working it dry we can work it regularly at our leisure. Should my process not succeed well on the large scale, I can stay my hand, try any further experiment before proceeding, or finally in despair ship the dried bark to England.

27. A very large portion of the present book by Mr. Howard, and also a great many of Dr. Broughton's experiments, refer to the process of mossing up the trees devised by Mr. McIvor. Before I took charge of the Rungbee plantations, Dr. Anderson had decided, after no very long experimenting, to have nothing to do with that process. About that decision there is no second opinion at Rungbee. Any person may, however, quickly decide it for himself in Calcutta.

Let him select a dozen trees 20 feet high (the Rungbee *succirubra* trees have reached that height already, and will probably be 30 feet in a couple of years' time); let him get moss enough for the purpose (if he can—we cannot at Rungbee); let him tie this moss round the stem and branches up to the second year wood; let him watch the trees six months, and loosen the bonds, where necessary, to prevent the trees being cut (working with the lowest coolie labour and superintending himself); then let him sit down and calculate the quantity of moss required for 1,200,000 trees (which there will be at Rungbee planted out by 31st March 1870), and where it is to be collected, and how much labour it will take to apply it, and how much superintendence to watch it. Then he will be in a position to form a very fair opinion on the process of mossing up. Indeed, I do not think Dr. T. Anderson's opinion was founded on any more extended experiments or recondite speculations. Granting that the mossed bark produces ten times the quinine that the unmossed does, I would unhesitatingly prefer growing ten times the number of trees in order to get the required amount.

28. At Rungbee Dr. T. Anderson has kept quite clear of the refinements which have, apparently, so largely occupied attention at the Neilgherry plantations, and has devoted himself to growing the chinchona trees in the largest size and quantity at the lowest rate of expense possible. In this he has succeeded, not in the qualified degree which it would appear from Mr. Howard's book success has been attained in the Neilgherries, but completely and beyond the most sanguine anticipations that were formed by anyone. Moreover, it now turns out that this bark is superior in value to that from the peninsula plantations. The problem now remaining is to get the febrifuge out of this bark in a form practically available in medical practice, and at the lowest possible cost.

29. With regard to the suggestion in the last paragraph of Dr. Anderson's letter, it would give me great pleasure to meet Dr. Broughton, and I do not doubt but that with a word he could save me the labour of many of the experiments which I shall have yet to make to clear up points of working detail. I also should like to obtain the aid of his experience in several questions connected with the machinery. I believe I might find time for a short visit to Dr. Broughton in March, and I have the honour to request Government to send me to Ootacamund, on deputation, for one month, more or less.

From *H. S. Beadon*, Esq., Officiating Under Secretary to the Government of Bengal, to the Officiating Superintendent of the Botanical Gardens, and in charge of Chinchona Cultivation in Bengal; dated Fort William, the 21st February 1870.

I AM directed to acknowledge the receipt of your letter, No. 165, dated the 10th instant, submitting your report on the subject of manufacturing quinine in Bengal, and in reply to inform you that the Lieutenant Governor has been pleased to sanction the expenditure of 2,500 rupees, applied for in paragraph 20, for machinery requisite for an experimental working of the manufacture. The charge will be met, as suggested by you, from the allotment for contingencies in your budget grant for the current financial year.

2. With reference to paragraph 29 of your letter, I am to say that the Lieutenant Governor is willing that you should proceed to Madras, as proposed by you, to hold an interview with Dr. Broughton.

Enclosure 2, in No. 5.

From *H. S. Beadon*, Esq., Officiating Under Secretary to the Government of Bengal, to *E. C. Bayley*, Esq., C.S.I., Secretary to the Government of India; dated Fort William, 4th November 1870.

1. From Officiating Superintendent, Botanical Gardens, and in arge of Chinchona Cultivation in Bengal, No. 202, dated the 1st ily 1870, and No. 220, dated 14th September.
2. To Officiating Superintendent, Botanical Gardens, and in charge Chinchona Cultivation in Bengal, No. 3087, dated the 31st ultimo.
3. From Honorary Secretary, Darjeeling Chinchona Association, ted the 5th ultimo, and enclosure.
4. To Honorary Secretary, Darjeeling Chinchona Association, No. 10, dated the 4th instant.

I AM directed by the Lieutenant Governor to forward, for the information of his Excellency the Governor General in Council, the accompanying copy of the correspondence noted on the margin, relating to the cultivation of chinchona and the proposed manufacture of quinine in Bengal.

From *C. B. Clarke*, Esq., M.A., Officiating Superintendent, Botanic Garden, and in charge of Chinchona Cultivation in Bengal, to the Secretary to the Government of Bengal; dated Rungbee, Darjeeling, 1st July 1870.

I HAVE the honour to report to you with reference to several questions which have lately arisen regarding the cultivation and manufacture of chinchona in Bengal, and which are so closely connected together that they may advantageously be dealt with as a whole.

2. Among these matters for present consideration are the questions—how far the area of cultivation of each species shall be extended in the Government Sikhim plantations? whether any of the land reserved for chinchona in Sikhim shall be abandoned? whether the manufacture of quinine shall be undertaken upon the plantations, either wholly or partly?

3. In March and April last I visited (by order of the Bengal Government, No. 476, of 21st February 1870) the Government Neilgherry chinchona plantations, and also then saw the Government quinine manufactory, under Mr. Broughton, in operation. I have also received Herr Von Gorkom's report of the Java Government chinchona plantations, dated 1st July 1868, Mr. Howard's late Treatise on Indian Quinology, the letters to the Government of Bengal of Dr. T. Anderson, dated 20th November 1869, and of Drs. Anderson and Simpson, dated 1st April 1870, and numerous other papers.

4. I commence this report with a description of the present state of the Government Sikhim chinchona plantations. This will be to a considerable extent a recapitulation of matter already published in scattered reports. I wish to bring out the radically different position of the Sikhim plantations from those in the Neilgherries and Java, and I shall not attempt to call attention tediously to the innumerable points in which the experience and practice of Sikhim are in direct opposition to theirs, especially to Javan experience and practice. It will be understood that, when my statements are discrepant with those of Herr Von Gorkom, I am aware of the discrepancy.

5. The Government chinchona plantations in Sikhim are Rungyroong, which I estimate to contain 1,000 acres, and Rungbee measured as 37,162 acres. With a view to economy, I have concentrated all the work at Rungbee, and it will be sufficient to state about Rungyroong that it contains 9,000 plants of chinchona *succirubra* and 80,000 of *officinalis* in permanent plantation, and that the forcing houses are all at Rungyroong, which is distant six miles from Rungbee.

6. The annexed map shows the Rungbee chinchona reserve. It is bounded on the north by the River Rungo; on the east by the River Teesta; on the west and south by the line of water-shed which separates the feeders of the Mahanuddy from the feeders of the Teesta.

This line of water-shed from the Darjeeling path to the mountain Sitong is at a great height, probably 6,000 to 7,000 feet for nearly its whole length. On the east of the Teesta rise the mountains of Bhootan; but between Sitong and the Teesta there is a view over to the plain of Bengal, which commences immediately south of the River Sivok, and through this gap sweeps the moisture-laden air from the plain from south-east to north-west.

7. The reserve naturally divides into three portions, viz.:

(*a.*) The valley on the right bank of the Rungjo;

(*b.*) The valley of the Ryang;

(*c.*) The broken ground between the valley of the Ryang and the River Sivok.

It is seen by a glance in the map that the whole of the present permanent plantations are in the Rungjo valley. It must be understood that the large patch, coloured green, is not

not one continuous forest of chinchona *succirubra;* the nature of the ground does not admit of uniform planting, but in the whole sweep of the green patch there exist 1,000 acres of *C. succirubra.*

The umber patch has two prolonged lines, which show the direction in which the permanent plantation of *C. calisaya* is about to be continued. The upper part of the *C. succirubra* plantation near B. was originally planted with *C. officinalis;* but this prospered so little that last year *C. succirubra* was planted also on the same ground, and the *C. officinalis* will doubtless soon disappear there.

8. The plantation has, generally speaking, been pushed from west to east, and the soil has been found to get continually better as we have descended the Rungjo valley. This accounts (irrespective of improved experience in management) for the superiority of the later planted portion of the plantations. The soil where the extension is now being pushed is very good, but probably the right bank of the Ryang valley is still better. The *C. succirubra* is planted from 2,000 to 3,500 feet of elevation, the small outlying experimental patch on the right bank of the Ryang extending from 450 to 900 feet elevation. This species (*C. succirubra*), it is found, cannot here be grown advantageously above 3,500 feet elevation, but it may be grown down to 1,000 feet; and even at 500 feet elevation it grows very fairly.

C. calisaya is found to thrive best at 1,000 to 2,000 feet elevation, and does not do well at elevations much exceeding 2,500 feet.

With respect to *C. officinalis,* I can only say that as yet it does not thrive or show any signs of becoming a tree at any level on the Rungbee reserve; it has been tried at every level, and where it now stands, viz., 3,500 to 5,000 feet, seems the best suited to it.

9. It will be at once observed that, though the area of ground contained in the chinchona reserve is very large, the area available for extension of our two species, *i.e.,* the area of good soil between 1,000 and 3,500 feet elevation, forms but a small fraction of it; and considering *C. calisaya* only, which being our best species is principally desired to be extended, and which requires ground between 1,000 and 2,500 feet elevation, there is probably not room for more than 1,000 acres of it in the Rungjo valley. It will appear further on that a much larger quantity of *C. calisaya* will almost certainly be required.

10. One reason, probably, why *C. officinalis* has never thrived here is that no very good soil is known to exist on the reserve within the limits of elevation which it requires. But it is the opinion of Dr. T. Anderson, in which, after seeing the Neilgherry *C. officinalis,* I concur, that the real reason this species does not thrive here is because the climate of Rungbee is too wet for it.

The head gardener in charge of the Government chinchona reserve at Nunklow, in the Khasya Hills, reports that *C. officinalis* "does first rate on the Nunklow slopes."

11. The climate under which chinchona thrives is now become a matter of wide interes. Instead of re-publishing *in extenso* tables of the meteorological observations made on the plantations, or of reducing the whole of these to means, I think a more clear and more truthful idea of the climate under which the chinchona is actually thriving can be got from the subjoined small extracts and accompanying remark:—

MONTHS.	Runbee. Altitude 3,300 feet. Below Mr. Jaffrey's Hut.			Rishap. Altitude 2,550 feet. At Mr. Kennedy's Hut.		
	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.
January 1867 - - -	51	68	40	57	71	42
February „ - - -	56	69	40	60	78	41
March „ - - -	65	79	52	69	81	56
April „ - - -	65	80	59	69	89	51
May „ - - -	68	81	55	75	91	61
June „ - - -	70	81	58	78	94	63
July „ - - -	72	82	64	79	92	69
August „ - - -	72	83	62	78	90	68
September „ - - -	73	88	60	78	94	66
October „ - - -	66	81	49	72	88	53
November „ - - -	59	75	44	66	84	50
December „ - - -	55	68	42	—	—	—
Mean - - -	64	- -	- -	71	—	—

These are the actual observations for the year 1867; they are selected because I believe they are very correct, while I have reason to suspect some of the readings made in subsequent years. The Rishap annual mean of 71° is about 1° too high, owing to the absence of the December observations.

MONTHS.	RUNGBEE. Altitude 5,000 feet. At Inspection Bungalow.	RISHAP. Altitude 2,000 feet. At Mr. Kennedy's Hut.
	Rainfall in Inches.	*Rainfall in Inches.*
January 1869 - - -	1·05	
February „ - - -	0·95	1·
March „ - - -	1·90	
April „ - - -	6·30	2·
May „ - - -	11·85	6·
June „ - - -	25·05	17·2
July „ - - -	31·05	16·9
August „ - - -	47·65	27·3
September „ - - -	28·90	18·8
October „ - - -	3·00	2·4
November „ - - -	—	—
December „ - - -	—	—
TOTAL - - -	157·70	91·6

These tables are not parallel with the temperature tables above, being not only for a different year, 1869, but taken at a different upper station. Probably the rainfall at Rungbee, at 3,300 feet altitude, is about a mean between that at Rishap, at 2,500, and that at Rungbee, at 5,000.

12. One year at Rungbee is very like another, both in the temperature and in the general distribution and quantity of rain. The proper climate for *C. succirubra* and *C. calisaya* appears to be a warm, equable and excessively moist one. Though the rainfall at Rishap is so much below that at Rungbee, yet the humidity is almost as excessive, the warm air from the plains sweeping through the gap at Sivok from the south-east across Rishap, and depositing its vapour as rain on the spur of the Rungbee inspection bungalow.

13. The Rungbee plantations are visited on the average once a year by hailstorms; these are generally very partial, and have never done serious damage, though by cutting the leaves they may have checked the growth at times of portions of the plantation.

14. One very essential advantage of the Rishap and Rungbee plantations is their freedom from violent winds. Situated, as they are, in a lateral valley within the Himalayas, from no quarter can a wind reach them. The air is nearly always still, and in seven years' experience no damage from wind has been met with. The chinchona trees are very brittle, and have leafy heavy heads, and one of the chief difficulties with which the Neilgherry plantations have to contend is, that they are fully exposed to the violence of the monsoon, which strips the trees of leaves, and breaks the young shoots exactly at the time—the commencement of the rains—when the trees are prepared to make their best growth.

15. At this point I may mention once more that the chinchona trees are now grown at Rungbee entirely in the open. At first it was supposed, on the faith of Javan experience, that chinchona trees absolutely required shade. Mr. McIvor, than whom no one knows better that a grain of theory is worth a ton of experience, declared from the first, before he had ever seen a chinchona tree a foot high, that the Javan experimental result must be wrong. Circumstances have more than justified Mr. McIvor's boldness in staking his theory, and to him is due the credit that the Indian plantations have been started on the only plan by which they could have attained their present success.

In Java (as appears from Herr Von Gorkom's report) the practice of shading the plantations is still resorted to, and from this fact alone I feel convinced that those Javan plantations can never hope to compete with Rungbee in the price at which they can produce bark.

16. For several years the species on which we shall have to rely at Rungbee will be *C. succirubra*. The 1,000 acres of this were planted under the dates subjoined, viz.:—

In 1866 - - - - - - - -	25 acres.
„ 1867 - - - - - - - -	185 „
„ 1868 - - - - - - - -	265 „
„ 1869 - - - - - - - -	350 „
„ 1870 - - - - - - - -	175 „

The 25 acres planted in 1866 are, for various reasons now understood, no better than the Rishap plantations of 1867.

Of

Of the 185 acres planted in 1867, nearly 60 acres were planted across the Ryang, *i. e.*, too low, and nearly 40 acres were planted at Rungbee, *i. e.*, somewhat too high. On the whole, there will not be at the close of this season more than 100 good acres at Rishap for pruning and thinning. These will produce not less than 200 lbs. of dry bark an acre. I estimate, therefore, the produce of the current financial year at not less than 15,000 rupees in value.

As regards the financial year 1871–72, there will not merely be 265 acres (nearly all good acres at Rishap) to thin and prune, but, moreover, the acreage thinned this year will require thinning afresh.

17. This leads me to the question of the most advantageous way of managing these plantations from the woodman point of view. They may undoubtedly be coppiced; and as we know pretty well what can be made of them on that system, we generally assume that plan of working in our financial calculations. But it is the opinion of Mr. Gammie, the head gardener here, that it will be found more profitable to work the plantations forest-fashion, *i. e.*, never to clear any acre, but to continually thin out the worst trees, and never cut a good tree so long as it keeps growing. In this way we might hope ultimately to see trees here, which would rival their American progenitors in size, and yield several hundred pounds of bark per tree. This forest plan of working the plantations would require a larger area for the production of a given weight of bark per annum than the coppicing.

18. *General Remarks on Extension.*—Chinchona can now be cultivated in many places, and also in many places at a profit, assuming the present price of the bark to hold. But it is perfectly certain that the price of bark must, under these circumstances, fall, and it will be the policy of Government to extend cultivation now only where the bark can be produced most cheaply.

19. As regards the amount of extension to be carried out, Government will have to consider whether the Government plantations shall be worked merely to supply sufficient quinine for the Government service, or whether by the sale of quinine, or of bark, Government will extend the benefits of the medicine among the public. On one point there should be no misapprehension. Quinine is an article of which a great value travels within a small weight. If Government can, therefore, in Bengal, provide itself with a cheaper quinine than the European manufacturers can furnish Government out of American bark, then Government can also under-sell the European manufacturer in the home market. Similarly, it cannot pay Government ultimately that the quinine for the Madras Presidency should be grown in the Neilgherries, and the quinine for the Bengal Presidency in Sikhim, except on the improbable contingency that the cost of production at each place be found exactly the same. And even on this hypothesis it would probably be economical to concentrate the work at one place, in order to diminish the expense of manufacture.

20. Another consideration, with regard to extension, is the position of private chinchona plantations. There are about 3,000 acres of private chinchona in the Neilgherries, and about 500 acres of private chinchona in Sikhim. These plantations will probably be highly remunerative, if bark maintains its present price; if, however, bark be reduced to one-sixth its present price, by the large produce of Government plantations, they hardly could be remunerative. The *C. succirubra* bark, at from three to five years old, from this plantation, is now worth 1*s.* 8*d.* per lb. in the London market. We believe that we see our way to growing it here, in almost any desired quantity, at 3*d.* per lb., so that a fall in the price of bark to one-sixth its value is at least conceivable.

21. On the other hand, I believe that chinchona cultivation may be very largely extended here before any such fall in price as this can take place. A fall in the price of quinine to half its cost would far more than double the consumption; it might very probably quadruple the consumption, not merely in India, but in Austria, Prussia, &c., where quinine is now almost a prohibited article by its high price. Moreover, a very large fall in the price of quinine might enable it to be employed by manufacturers for the creation of the unrivalled dyes of which it is the base.

22. The quantity of quinine issued from the Government Medical Stores for the official year 1869–70 (for Bengal, North Western Provinces, Punjab, and Central Provinces), was 2,671 lbs.

Suppose that the existing 1,000 acres of *C. succirubra*, at Rungbee, are worked coppice fashion (which we know can be done, though we do not know it to be the most profitable manner of working), at least 150 acres could be cut annually. These would produce at least 2,000 lbs. of bark per acre; and if this bark produced two per cent. of amorphous quinine, or one per cent. of crystallizable sulphate, this would give 6,000 lbs. of amorphous quinine, or 3,000 lbs. of crystallized sulphate annually, *i. e.*, more than enough to satisfy the present Government wants.

23. These figures are extremely uncertain and speculative, but they are, I believe, certainly within the mark. We expect to cut 3,000 lbs. of bark on an acre worked coppice fashion, and even from this class of bark I should hope to get three to four per cent. amorphous quinine, instead of the 2 per cent. assumed above.

24. It would appear, therefore, that if Government is disposed to grow chinchona only to meet its own local requirements, it is not necessary to extend further the cultivation of *C. succirubra* at present; and this is, I believe, the opinion both of Mr. McIvor and of Mr. Broughton.

25. But as I understand the official papers, Government did not commence the cultivation of chinchona in India with any definite intention concerning the manufacture, but with the design of keeping down the price of bark in the London market, and thus diminishing the price of quinine, not only as against themselves, but as against the general consumer. The parties who will be really injured by the large growth of bark here are not the London manufacturers but the barbarous governments of South America. Their treatment of the bark monopoly deprives them of all title to consideration. (I am here, for simplicity, considering the question of extension apart from all questions about local manufacture).

26. But as long as Government continues extending its area of plantation, it can hardly be expected that private enterprise will do much, and this is, so far as I can see, the only consideration that is much worthy the attention of Government in considering how far the general extension of quinine shall be carried.

27. *Particular Extension.*—Government having determined the question of general extension, the next point will be to determine in which locality it will be economical to extend each species. The three species demanding present consideration are *C. officinalis*, *C. succirubra*, and *C. calisaya*.

(*A.*) *C. Officinalis.*—The most successful plantations of this in India are undoubtedly Mr. McIvor's on Dodabetta in the Neilgherries; the plants are growing into trees, a great number being now 20 feet high. These trees are nevertheless very poor-looking compared with plants of *C. succirubra* or *C. calisaya*, and will never give a yield of bark per acre comparable with that given by *C. succirubra* or *C. calisaya*. At the same time the high quality of the bark and the comparative facility with which it can be worked into the crystallized sulphate will make the species always worthy of attention.

I believe that the Government of India has finally decided not to abolish the establishment of the chinchona nursery at Nunklow, in the Khasyas. In this case it will be in my power to carry on the growth of *C. officinalis* on a small scale at Nunklow. If it continues to "grow first rate there," as it is reported to be doing now, I expect it will be found ultimately that it can be grown cheaper in the Khasyas than in the Neilgherries. This is, however, at present a mere speculation against the established success already exhibited in the Neilgherries.

(*B.*) *C. Succirubra.*—The Neilgherry plantations of six, seven, eight and nine years' growth are successful examples of cultivation, and there are no plantations of similar age at Rungbee for the institution of immediate comparison therewith. But in calculating at which place future extension can be most economically carried on, it is not required to compare the early attempts at the two plantations, but to estimate what can be done now.

With this object I observed with great attention the last three years' planting of Mr. McIvor, and weighed the results with those obtained on the Rungbee plantations. In these later plantings Mr. McIvor has brought his method very nearly down to that pursued at Rungbee, that is, he cultivates much less than in his earlier plantations, and he plants his trees six feet by six feet. The best trees three years out in permanent plantation at the Neilgherries are 12 feet high; on the Rungbee plantations the best trees pass 20 feet high in that time. Nor does this represent the whole superiority of the Sikhim plantations. The trees are much more bushy and of stronger growth, and the cultivation given them is much less than the minimum allowed by Mr. McIvor.

To sum up, I estimate that any future quantity of *succirubra* bark required by Government can be grown at half the cost in Sikhim that it can in the Neilgherries.

In stating this conclusion, I may be permitted to record my admiration of the skill in cultivation shown by Mr. McIvor, and of the ingenuity of resource displayed by him in contending with difficulties. We can show nothing of the kind in Sikhim, but it is a case of nature *versus* art, and I do not believe that any place where the rainfall is under 50 inches a year (with, moreover, a long dry season) can contend with the perpetual drip of Rungbee in the production of *succirubra* bark.

One of Mr. McIvor's ingenious devices has been that of mossing-up the trees in order to increase the production of quinine in the bark. Much has been written and printed about this, and enormous pains have been bestowed on comparative analysis of the bark so treated. I have recorded in my previous reports the strong objection to the mossing-up process which exists at Rungbee, and I have stated that, if it were proved that mossing-up increases the per-centage of quinine ten-fold, I would prefer growing ten-fold the acreage of *C. succirubra* to attempting the operation of mossing-up the present plantation. I hold to this opinion after seeing the peculiarly ingenious details of Mr. McIvor's mossing-up.

But further, Mr. Howard's late great Treatise on East Indian Quinology goes very fully into analyses of mossed-up barks under an infinite variety of conditions. Very possibly I have failed to perceive all that it is intended the reader should deduce from those analyses; but so far as I can understand Mr. Howard, the question how much mossing-up improves the yield of quinine by bark, lies involved in the profoundest obscurity.

obscurity. Also Mr. Broughton (as I gathered from his conversation), who has executed most extensive experiments to settle this question, is still in great doubt whether any increase of yield at all will ultimately be reaped from mossing-up. Under these circumstances, though Mr. McIvor has not protected his discovery of mossing-up by a patent, I do not propose to invade his inventorial rights. I have the consolation of knowing that in so far as the moss acts by shading the sun's rays from the bark, any moss applied in the good Rishap plantations would be quite superfluous; the stems are already in the deep shade of a heavy forest jungle.

(*C.*) *C. Calisaya.*—This is the magnificent species which ranks first of all bark in the London market, the bark now being worth 9*s.* per lb. And I believe the only locality yet discovered where it could be grown to any economic advantage is at Rishap on these plantations.

I look on Mr. McIvor's efforts with *C. calisaya* as simple failure in the economic point of view. I searched his plantations to find the biggest plant of any age of *C. calisaya* there. The largest I could find measured in circumference of stem (four inches above the ground) six and a half inches, and was a small neat shrub about seven feet high.

Now, at Rishap (on these Sikhim plantations) *C. calisaya* grows just as luxuriantly and healthily as does *C. succirubra*. Good specimens in two years in permanent plantations reached 12 feet high, and would then cut 2 lbs. of good dry bark each. I expect these plants will be at least 18 feet high when they complete their third year out. They show every sign, even more than *C. succirubra*, that they are going straight up into forest trees of the first magnitude.

In Java they have in nine years grown one specimen of *C. calisaya* up to 18 feet, but the whole details of Von Gorkom's report, and especially the account of the shading given the trees, show quite clearly that they can in Java no more rival the Rishap *C. calisaya* than can Mr. McIvor in the Neilgherries.

I may mention by anticipation that in manufacturing a totally different method may be employed with C. *calisaya* from that necessary with *C. succirubra*. In case *C. calisaya* can be ultimately grown here in large quantity, I doubt much whether any other species will stand before it. I should not be surprised if the ultimate result of quinine-growing should be the exclusive cultivation of *C. calisaya* in Sikhim.

Under these views, since I have been in charge of these plantations (now 12 months), every effort has been made for the extension of *C. calisaya*. Unfortunately, though it is quite hardy here when once a rooted plant is obtained, it is exceedingly difficult in propagation, so much so that there is little hope of rapid extension of the species until we obtain seed. Our plantations do produce some seed, but owing to the dimorphism of the chinchona plant, and the extreme wet of the climate in summer, which impedes the operations of insects, our seed sets in a most partial manner, and what amount of seed we may get next cold weather can only be a matter of speculation. I have, by the great kindness of Van Gorkom, received from time to time most valuable packets of *C. calisaya* seed from Java.

I wish therefore to be permitted to press strongly on Government that, whatever other reductions or restrictions upon the extension of the Government chinchona plantations be imposed, the extension of *C. calisaya* at Rishap should be pushed with the utmost energy, and that no expense should be spared in getting up every practicable acre of this invaluable and unapproachable species.

28. *Method of Cultivation of Chinchona.*—I add here, chiefly for facility of reference, for Dr. T. Anderson has fully described everything in his reports, a short account of the method of cultivation of chinchona finally adopted by Dr. Anderson in Sikhim.

(*a.*) To obtain plants. Seed is sown as mustard-and-cress seed is sown, either in an open border shaded under a mat, or in winter time in a stove-house. The open border succeeds excellently well in summer, but when I received from Von Gorkom about one-fifth of an ounce of *C. calisaya* seed in last November, the head gardener, Mr. Gammie, raised very nearly every single seed, in all above 9,000 plants, in the stove house.

Cuttings are made just as cuttings of fuchsias, &c., are made. In order to obtain good eyes, stock plants are kept under class for obtaining slips from *C. succirubra*. *C. succirubra* and *C. officinalis* strike with great ease. *C. calisaya* here damps off, but in the drier climate of the Neilgherries Mr. McIvor grows *C. calisaya* by cuttings with complete success.

When plants are grown by seed, they require picking out in the usual manner to give them more room.

(*b.*) The cuttings being thoroughly rooted, or the seedlings having attained about four inches high, are then removed into nursery beds. These are mere open borders on the hill side, with a mat shade over the top. The plants stand here three months, and during the latter part of the time the mats are gradually removed, so that the plants become hardened off to stand the tropical sun and pelting rain. They are then about a foot high, and ready for removal to the permanent plantation.

(*c.*) To prepare permanent plantation, the jungle is urnt during the cold season, and if there is a good burn little else is required, otherwise the grass left untouched by the fire is collected and burnt. If there are trees on the ground they are all felled. Small holes are then scraped in the ground six feet apart, and the plants in the nursery beds are stuck out in them in the very roughest way, no shade or care even of the most temporary

kind being afforded them. The subsequent care of the plantations consist in cutting the grass from time to time with a hook, to prevent the young trees being choked before they get a fair start. In about three years the chinchona trees form a dense mass, under which no jungle can grow.

(*d.*) I should add that Sikhim is the most steep and crumpled up part of the Himalayas, and that the outer ranges of the Himalaya are gigantic rubbish heaps, in which the stones and earth stand at as steep an angle as the heavy rain will allow. Of all the Sikhim valleys, perhaps none is steeper or rockier than the Rungbee valley. The permanent plantations of chinchona are much of them on ground that no labourer, except a Nepalese, would venture upon, much more manage to stand and work upon, and the chinchona plants are often planted in nooks between rocks as big as cottages; nor is there any situation that they seem to like better.

On the other hand, if the water lodges in the least in the subsoil, although it may be a place where there is an excellent fall and surface drainage, we get here a bald patch in our plantation.

(*e.*) I have gone with great minuteness of detail into the cost of growing an acre of chinchona on this method with Mr. Grammie, the head gardener. Taking every possible unfavourable contingency, he estimates the cost of preparing and planting one acre of *C. succirubra* at 15 rupees, and the annual cost of the repeated jungle-cutting on it during the next three years at 22 rupees each year. The acre will thus cost Government at the end of the third year something under 100 rupees, allowing for interest of money and superintendence; and the necessary pruning and thinning of that acre will then give 300 rupees. After the third year the cost of keeping will be next to nothing, and the pruning and thinning will give each year increased amounts of bark. These figures result from taking our red bark at its present London market price.

In short, assuming the price of bark not to fall very materially, I see no speculation in all India to be compared with that of growing chinchona bark in Sikhim. And still larger profits might be made by manufacturing the bark instead of sending for sale in London.

29. *Manufacture.*—I believe that Government first embarked in the cultivation of chinchona without any views regarding the manufacture. Dr. Ewart, in his pamphlet describing the Rungbee plantations, called attention to the great facilities afforded for the local manufacture, and the great economy which would be effected by saving the cost of drying, packing, and carriage to England. In the Neilgherries, Mr. Broughton, the resident quinologist to the Government of India, has now established a small manufactory, and in April last was supplying about 10 lbs. per month of amorphous quinine to the Inspector General of Hospitals in Madras.

30. There has been a great mass of matter published, which appears to bear upon this question of local manufacture; but on closer examination it will be found that nearly all of it is beating about the bush, and refers either to manufacture of the high class *C. calisaya* and *officinalis* barks, or else consists of laboratory work or in the announcement of the results of minute analysis. The only bark we shall have in quantity for many years at the Sikhim plantations is young *succirubra* bark, which presents unusual difficulty in its handling. It may, indeed, be seen in Mr. Howard's great Treatise on Indian Quinology that some of the ablest German chemists and quinologists have actually declared that there is no quinine at all in this young Indian red bark. And in all the mass of extant literature, I think very few passages can be discovered likely to afford a man the slightest practical assistance in producing quinine out of such bark. The title of Mr. Howard's Quinology of the East Indies might lead one to expect much from it, but I challenge any person to point out a passage in that great book from which the slightest hint about the manufacture can be gleaned.

31. Now, my object is not to make any complaint about this. Mr. Howard is by trade a quinine manufacturer, and he is fully justified in keeping the results of his vast experience to himself. But the moral which I desire to draw is that upon this question of local manufacture the higher departments of Government ought not, under these circumstances, to pay the slightest regard to the opinion or advice of manufacturers. I make this point very distinct, because I have good reason to believe that interested persons have already commenced attempts by surreptitious influence to hamper the local manufacture in India, even if they cannot hope to stop it altogether.

32. In the statements concerning manufacture that I am now about to make, I depend therefore almost entirely, first, on the results of my own very limited experience; second, and chiefly, on Mr. Broughton. As above stated, I enjoyed the hospitality of Mr. Broughton's roof in March and April last, and witnessed daily his factory. He also showed me many things in his laboratory; I cannot sufficiently express my obligations to his generous kindness. I am fully satisfied that Government has in their own quinologist a man able to advise better on the manufacture of quinine than any other man whose advice can be got: the manufacturers themselves of course give none. And in my experimental manufacture of quinine here I am aiming, as a first step, to produce that "amorphous quinine," which from Mr. Broughton's manufactory so highly satisfied the Madras medical profession. This "amorphous quinine" can certainly be manufactured in

any

any desired quantity, and, if my skill proves insufficient to produce it at Rungbee, Mr. Broughton has undertaken to lend his best European assistant, or come himself to Rungbee, when it certainly will be produced.

33. The great chemical authority on quinine is Pellettier, and he has to this day not been superseded. As the result of his investigations, he declared that the febrifugal properties of Jesuit's bark lay in the peculiar vegetable alkaloids therein contained, and he proposed two forms in which those alkaloids might be prepared for medicinal use, and gave the process for their production.

34. The first form was the amorphous alkaloid itself; the second, the crystallized sulphate of the alkaloid. Pellettier thought the first preferable. However, manufacturers, the medical profession, and the public have till now agreed in adopting the second. The reasons for this have been that the crystallized sulphate is in itself a beautiful and attractive product, and one which it is very difficult to adulterate; but more especially the process given by Pellettier for making the amorphous alkaloid contained some details which the manufacturers found especially troublesome to work in practice, whereas the process given by Pellettier for making the sulphate was found practicable by the manufacturers, and for actual manufacture on a large scale no other process has ever been employed.

35. The advantages of the amorphous alkaloid are that it has not the intense bitter of the sulphate, so that heavier doses may be given to weaker patients, and that its manufacture is less wasteful of bark. For in no crystallizing can perfect crystallization be attained; a certain portion of the substance crystallizes; a residuary portion remains behind in the water of crystallization. In the case of chinchona alkaloid, in many cases not one-half can be crystallized by any skill; hence crystallized sulphate must always be very expensive as compared with amorphous alkaloid. The waste in practice is not so great as appears, because the uncrystallizable alkaloid is not thrown away, but forms the basis of many well-known medicines, and is also to be purchased as an amorphous powder, and is now employed occasionally by some medical practitioners.

36. As regards the therapeutic effects of crystallizable alkaloid and uncrystallizable, it seems inconceivable that there can be any difference. The crystallized sulphate is often dissolved in spirit or weak acid before taken by patients, and I never heard any medical practitioner hint that the efficacy of the medicine was thereby diminished. But in such case the patient takes identically the same chemical substance as he would swallow were he given uncrystallizable alkaloid (or the general alkaloid as it comes from the bark) similarly dissolved in spirit or in weak acid.

37. I have above talked of chinchona alkaloid, meaning thereby the totality of alkaloid obtained from a given chinchona bark. This alkaloid is chemically separable into a series of very closely allied alkaloid substances, of which the principal are quinine, chinchonidine and chinonine. These substances are very complex, *i. e.*, they have numerically high formulæ, and, as a consequence, there may be still some doubt as to their exact chemical composition. Like many complex compounds, they are by no means very stable, and it is probable that, not only in the living tree but even during our laboratory processes, one is liable to be replaced by one of the other. Their complete chemical separation is an extremely delicate matter. In the ordinary process of crystallizing the chinchona alkaloid, all these alkaloids crystallize together in proportions varying with the bark employed, and the state into which the alkaloid has been got by the process employed. I believe I am justified in assuming that in the ordinary commercial sulphate of quinine the manufacturer crystallizes all he can to the last grain, whether quinine, chinchonidine, or some other alkaloid. I may remark, in passing, that quinine itself crystallizes in comparatively short crystals, and that the beautiful long needles which are regarded as almost a test of quinine are generally chinchonidine. There is, however, no objection whatever to putting out this mixed crystallized sulphate, for the latest experiments in England seem to show that the therapeutic action of chinchonidine is in all respects identical with that of quinine.

38. However this may be, the object of the above is to remove an objection at first raised by some medical officers against the amorphous alkaloid, viz., that when they give 10 grains of sulphate quinine, they give something definite; whereas if they shall give 10 grains of amorphous alkaloid, they will be giving possibly two grains, possibly four grains of quinine mixed with six or eight grains of something which may be rubbish, or may possibly be a strong quinidizing alkaloid. Now, the above argument of mine is intended to show that, though there may be great doubt in a dose of amorphous alkaloid as to the relative proportion of the quinine chinchonidine and chinchonine contained therein, there is no more doubt than there exists about a dose of mercantile crystallized sulphate, and that it is extremely doubtful whether the proportion of quinine and chinchonidine matters in the least. There appears to be less known about the action of chinchonine. The amorphous alkaloid put out by Mr. Broughton contains, on an average, 33 per cent. of quinine, 40 per cent. of chinchonidine, and 27 per cent. of chinchonine. This has been administered in 4,000 recorded cases in Madras as equivalent to an equal weight of sulphate quinine, and is reported to act similarly and satisfactorily.

39. Mr. Broughton has named this product "amorphous quinine," which is quite

 defensible

defensible on the analogy of "sulphate of quinine." [It is the "Mr. Broughton's yellow or buff powder" of Dr. Anderson's letters.] At the same time, if it is lawful for me to offer any suggestions to Mr. Broughton on a matter connected with quinine, I would wish to suggest that this product be called simply "chinchona alkaloid," which is just what it is. There is the obvious objection (though it may be a superficial one) to Mr. Broughton's own name that the product is not amorphous quinine, but that only 33 per cent. of it is amorphous quinine.

40. I have received much friendly encouragement throughout my quinine work from Dr. Murray, the present Inspector General of Hospitals in Bengal, and on this subject of the form in which the bark from the Government plantations should first be tried, he has advised me in detail. Dr. Murray says he would be perfectly satisfied with any product that contains the alkaloids in the same proportion in which they exist naturally in the bark, and that at least in the Government Hospital practice he does not object to an amorphous product, as he is satisfied that no adulteration would or could take place within the Medical Department.

41. Mr. Broughton's product, this chinchona alkaloid, is in short identical with the amorphous alkaloid, originally recommended by Pellettier; but Mr. Broughton has devised many alterations in the details of the process for its manufacture, by which the practical difficulties attending Pellettier's process have been surmounted.

42. The Government of Bengal having sanctioned the experimental manufacture of quinine at Rungbee, I have, as above stated, commenced with an attempt to imitate closely Mr. Broughton's process in manufacturing his "chinchona alkaloid." Among other advantages attending this plan there is this: that, if at any time it is wanted to manufacture the crystallised sulphate, Mr. Broughton's process forms the first two steps in that manufacture, and all the machinery, &c. will remain useful.

43. An impression I find still widely exists that the manufacture of quinine is a secret, and that any attempt to produce it must fail. Now, any good text-book of chemistry will give not merely a laboratory process to produce sulphate quinine, but will also give an account of the process pursued by manufacturers. The real secret is to perform this process with reasonable economy, and especially to perform the prolonged boiling of the first precipitate in alcohol without any loss in alcohol. In these practical matters I owe everything I know to Mr. Broughton.

44. There has been a great deal of correspondence addressed to Government suggesting various plans whereby the alcoholic process might be dispensed with, and the alkaloid obtained directly by precipitation. Dr. Simpson mentions that in the laboratory of De Vrij he has made even crystallised sulphate without employing alcohol at all. So have I, and moreover from red bark, but at a great sacrifice of quinine. The objections to the alcoholic process were originally defined by Mr. Broughton to be that alcohol is difficult to protect from being drunk, and that there is a liability to serious explosions in boiling it in large quantities. But these two objections exhaust the whole objection to alcohol. Be it recollected that every manufacturer employs this process. An acid will take up the quinine, but it will take up many other things, and in most uncertain proportions, so that at the end of the process it is impossible to say what you have got beside the quinine. Alcohol possesses the quality of taking up the alkaloid *only*, admixed with an unimportant quality of the colouring matter. A result of certain purity without analysis is thus arrived at.

Moreover, at the present price of quinine, the alcoholic process pays for itself, *i.e.*, it produces more quinine than can be got by any of the other processes, which depend on fractional precipitation, always necessitating some loss. I am satisfied that no process is likely to supersede it in dealing with Indian young red bark. But years hence, should these plantations produce *calisaya* bark in unlimited profusion (as I believe they will), I am by no means certain that the alcoholic process may not possibly be dispensed with, and a crystallised sulphate produced, with only a moderate sacrifice of quinine, which may then possibly be cheap.

45. I am now fairly embarked here at Rungbee on the manufacture, and I find that in practice the alcoholic process is by no means the thing to be dreaded. On the gigantic scale, on which everything about this plantation is cast, all reduce itself at last to a question of magnitude. We have to boil repeatedly and squeeze dry in presses tons of bark; we have to stew in alcohol hundredweights only of precipitate. The latter operation requires more cunning in the arrangements, but when those are at once understood the actual performing of the process will not cost one tithe the trouble of the former, merely because it has to be performed on a comparatively manageable quantity of matter.

46. The crack European manufacturers can undoubtedly manufacture quinine more skilfully than we can hope to do at Rungbee, and it remains to show the counterbalancing advantages which induce me to believe that the local manufacture will prove permanent here.

(*A.*) The mountain above the plantation is covered with high forest to the summit. Fuel is excessively cheap, nor will it become dearer for many years, unless the chinchona

chona reserves be mulcted of this forest. Charcoal we estimate to cost us seven annas (10½ *d.*) per maund of 80 lbs.

(*B.*) Coolie labour (Nepalese or Lepcha) is 5 rupees (= 10 *s.*) per month. For most of the manufacturing operations it is as good labour as could be desired, nor do the coolies object to keeping up fires all night; they rather enjoy it.

(*C.*) The Lepchas build large water-tight bamboo houses very cheaply. My large house for the alcoholic process, and which would turn out 500 lbs. of quinine a month, costs Government less than 7 *l.*

(*D.*) Perennial torrents descend the mountain side, and the Lepchas lead water in bamboo tubes to all parts of the factory, which can be turned on or off in an instant, and also can be regulated in amount. In all the distilling, &c., this is highly convenient, to say the least.

(*E.*) By manufacturing here we avoid the expense of drying, packing, and carriage to England. As to the drying, I doubt if on the large scale we could carry it out satisfactorily in this reeking climate. The expense of carriage to England is not at present a very heavy per-centage of the value of the bark, but in case the price of bark falls greatly, it might become of very grave consideration.

(*F.*) By getting the bark directly from the living trees into the boilers, an advantage is gained in the manufacture, which only those who have tried it as against working dry bark can fully appreciate. The bark is then quite tender, and gives up its alkaloid with the most charming readiness. An extremely small quantity of acid suffices, the tedious boilings are largely reduced in number and duration, and finally more quinine is obtained than by any amount of labour could be got from the same bark after having been dried.

47. In conclusion, I must beg leave to apologise for the imperfect arrangement of the matter in this Report. The subjects of the abandonment of ground, of the extension of cultivation, and of local manufacture, are so closely connected in my own mind, that I have been utterly unable to divide out my matter precisely.

I beg leave to recommend that the Sivok division of the Rungbee reserve be handed over absolutely to the Forest Department, and that the Raying Valley be reserved intact for chinchona.

From *C. B. Clarke*, Esq., Officiating Superintendent of the Botanical Gardens, and in charge of Cinchona Cultivation in Bengal, to the Secretary to the Government of Bengal, dated Calcutta, the 14th September 1870.

I HAVE received from Dr. T. Anderson in England a private letter containing such important information regarding the chinchona bark sent home from the Rungbee plantations that I venture to submit some extracts.

2. Two chests of the bark of *Chinchona succirubra* were sent home, each containing about 80 lbs. of the stem bark from three-year-old trees. This bark fetched 1 *s.* 9 *d.* per pound at public auction. Dr. T. Anderson has no doubt but that it would have fetched a higher price had there been a sufficiently large quantity sent to induce a real competition among the purchasers.

3. *Chinchona calisaya* is reckoned the highest class of bark in the English market, but it has been largely cultivated in Java; and the Java bark has proved of very small value.

I sent home the bark from one tree of *Chinchona calisaya*, which had been less than three years planted in the permanent plantation, and which produced very nearly 2 lbs. of dried bark. This was, therefore, not a sample of the best stem bark, but a mixture of all the bark peeled from the tree up to the wood made during the current season.

Mr. Howard's analysis of this bark is given as follows:—

No. I.—*Calisaya* (oldest bark):—

Sulph. quinine	0·97	
Quinine	0·93	
		1·90
Cinchonine		1·28
		3·18

No. II.—*C. Calisaya* (smaller branches):—

Sulph. quinine	0·51	
Quinine	1·86	
		2·37
Cinchonine traces of quinidine		0·50
		2·87

No. III.—Smallest branches *calisaya*:—

Quinine - - - - - - - - -	0·90	
Cinchonine traces of quinine - - - - -	0·27	
		1·17

Mr. Howard sums up his analysis with these remarks:

"This *C. calisaya is quite of the right sort* [*Howard*], and the only lot from either British India or Java that I have seen on which I could pronounce a favourable opinion. It is quite immature, but the amount of tannin is diminishing at each cutting."

The brokers' valuation of this bark is as follows:—

From Messrs. *Jenkin & Phillips* to Dr. *T. Anderson*, dated London, 12th July 1870.

"We have carefully examined the sample of Indian *calisaya* bark grown at Darjeeling, shown us by Mr. Howard, and find it to be quite of good quality. We consider the value to be 2 *s.* 3 *d.* to 2 *s.* 6 *d.* per lb. as compared with South American, of good genuine quality, which now sells at 3 *s.* 3 *d.* to 3 *s.* 6 *d.* per lb.

"On this I may explain that the South American taken for comparison by the brokers was, I presume, South American quill, as I believe prime *calisaya* bark from old trees is worth in London 9 *s.* per lb."

From *H. S. Beadon*, Esq., Officiating Under Secretary to the Government of Bengal, to the Officiating Superintendent of the Botanical Gardens, and in charge of Chinchona Cultivation in Bengal, 31st of October 1870.

I AM directed to acknowledge the receipt of your letters, No. 202, dated the 1st July 1870, and No. 220, dated the 14th ultimo, and in reply to convey to you the thanks of Government for your full and interesting Report regarding the cultivation and manufacture of chinchona in Bengal.

2. The Lieutenant Governor approves of your proposals for the retention of the land reserved for chinchona in the valley on the right bank of the Rungjo and in the valley of the Ryang. With regard to the proposed abandonment of the broken ground between the valley of the Ryang and the River Sivok, and its transfer to the Forest Department, the Lieutnant Governor observes that, on a previous recommendation made by you, the resumption of the ground by the Forest Department was forbidden. If, however, upon further consideration you are satisfied that you can now dispense with this portion of the reserves, and the Forest Department are willing to take it over, the Lieutenant Governor has no objection to its transfer.

3. With reference to the important questions discussed in your letter of July, regarding the extension of the area of cultivation of each species of chinchona and the local manufacture of quinine, I am to state that, before forming an opinion on these matters and reporting to the Government of India regarding them, the Lieutenant Governor would wish to have before him a report of the results of the experiment which was sanctioned in the Orders of the 21st February 1870, No. 476.

4. In connection with the question of extending the Government cultivation, I am desired to forward to you the accompanying copy of a letter dated the 5th instant, from the Honorary Secretary of the Darjeeling Chinchona Association, depreciating the extension on the part of Government of its chinchona plantations. The Lieutenant Governor would desire to be favoured with your opinion upon the arguments advanced, and the position assumed in this letter.

From *W. Lloyd*, Esq., Honorary Secretary, Darjeeling Chinchona Association, to the Secretary to the Government of Bengal, dated Poomong, Darjeeling, 5th October 1870.

ON behalf of the Darjeeling Chinchona Association, I have the honour to submit a representation, which I respectfully desire to lay before his Honor the Lieutenant Governor.

2. I need hardly remind his Honor of the desire so often expressed by the Governments of Bengal and Madras that, after introducing Chinchona cultivation into India, private enterprise should occupy this field of industry; and that the experimental gardens they were creating were to be considered as intended to serve as nurseries for supplying the public with plants, at a charge which would fairly meet the expenditure thus incurred, while showing, on a moderate scale, the feasibility of growing bark to a profit.

3. It was expected by many that the encouragement which Government intimated its intention

intention to afford would have extended much beyond this. My association cherished no such illusion; it has incurred heavy expenditure in an enterprise to which it was invited by the promises of encouragement from the Government; but it neither expected nor desired anything beyond that minimum of aid to which I have referred. How anything short of this can come under the designation of "encouragement," I am at a loss to conceive.

4. That the Government establishment here (in Darjeeling) has been of the smallest possible benefit to our enterprise, is a fact of which I forbear to complain. This doubtless has contributed to prevent planters from embarking in the undertaking; but the association I represent has been content to work for itself unaided. What we do complain of, and what necessarily causes us most painful anxiety and alarm, is to find that we have been induced to stake our capital in an undertaking in which we could expect competition only with private individuals, while in fact we have been brought into a ruinous competition with Government itself. Both here and in Madras the Governments are employing their boundless resources in an enormous and indefinite extension of this cultivation. In the two Presidencies they already possess about 6,000,000 of plants; yet his Honor, I am informed, has ordered that of *succirubra* alone 600 additional acres shall here be planted out next year, and that *calisaya* (of which the Government retains a monopoly) shall be propagated to the utmost extent possible.

5. I do not here presume to question the general right of Government to engage in private speculations to any extent it may conceive to be legitimate, but I do very humbly submit that in this case it has gratuitously inflicted a grievous injury on those it invited to occupy this field, and now crushes out of it by a competition that it would be hopeless for them to contend against.

6. I cannot suppose that his Honor can be aware of the extent to which the operations of this association have been carried out. The last monthly Report, a copy of which I venture to append, will, I trust, satisfy his Honor that there has been no failure on our part to meet the wishes so often expressed by Government that the cultivation should be energetically carried on by private enterprise. What we have effected. others might and probably would have emulated, had not all enterprise been paralysed by that of the Government itself.

7. As I have remarked, the position of this association has now become one of painful embarrassment. Chinchona is being grown with great success in many parts of the world; but it is because, superadded to this, we are weighted with the crushing competition of the Government in the very field it invited us to occupy that we feel that we have been drawn into an undertaking become hopeless. When from private competition prices fall below the cost of production, the balance may be adjusted by a falling-off in production. But however unremunerative the price of *bark* may become, the general benefit accruing to the community at large may compensate the Government for any apparent loss. I would not be understood to deprecate such a result in itself. I admit that in a sense this might be most gratifying, yet this association may reasonably complain of being ruined in the process. It was invited to engage in a commercial speculation; should its co-operation have been asked if the aim of Government was purely philanthropic?

8. It may be that his Honor does not anticipate such a serious fall in the price of *bark* as we apprehend. Unfortunately, however, for the prospects of this association, the public feels satisfied that the proceedings of Government are utterly ruinous to our undertaking, and the consequence is that the association finds it impossible to enter into any financial arrangement which would enable it to carry on operations now become so vast as to be far beyond the private means of the members. No interest will tempt people to lend money on an undertaking carried on in despite of Government competition.

9. I trust, then, that, under these circumstances, I may be permitted to ask definitely what are the views of Government in the matter? If Government now desire to obtain a monopoly of chinchona in the Darjeeling District, I respectfully submit that the readiest and cheapest plan, the plan, too, most equitable to those who have suffered by this change of policy, would be that Government should buy up the property of this association.

10. This association having achieved a success in every way as complete as that attained by the Government, having surmounted every difficulty but the one which it could never have anticipated meeting, naturally feels distressed at being thus driven from the field; but is yet prepared to submit to this neeessity and the will of Government. Moreover, while it is presumable that Government has conducted its operations far more economically than was possible for a private association, I am prepared on its behalf to accept a price proportionate to the rate at which the Government plantations have been created.

11. If, on the other hand, the Government still desires the extension of this cultivation by private enterprise only, this may be secured without expense or risk, and to almost any extent required. We only ask that Government should desist entirely from extending its own cultivation, and advance to us on a mortgage of our entire property the sum of 40,000 rupees. With this supplementary aid, and the large resources our nurseries afford, I believe we could nearly double the extent of our cultivation during the ensuing year.

TABLE showing the Number of PLANTS of the different Species of CHINCHONA planted out at Poomong up to the 30th September 1870, with their Distance apart, and Area in Acres occupied.

Names of Species.	Number of Plants of each Species.				Area occupied by each Species.				Total of all Species.	Distance apart.
					Succirubra.	Officinalis.	Micrantha.	Pahudiana.		
1865:	*C. s.*	*C. off.*	*C. m.*	*C. P.*	*A. r. p.*	*A. r. p.*	*A. r. p.*	*A. r. p.*	*A. r. p.*	*Feet.*
C. Pahudiana -	-	-	-	1,720	- -	- -	- -	0 3 37	0 3 37	5 × 5
1866:										
C. succirubra -	23,402	-	-	-	19 1 14	- -	- -	- -	- -	6 × 6
C. officinalis -	-	100	-	-	- -	0 0 13	- -	- -	- -	6 × 6
C. Pahudiana -	-	-	-	-	- -	- -	- -	- -	19 1 27	—
1867:										
C. succirubra -	112,638	-	-	-	93 - 14	- -	- -	- -	- -	6 × 6
C. officinalis -	-	2,000	-	-	- -	0 1 26	- -	- -	- -	3 × 3
C. micrantha -	-	-	547	-	- -	- -	0 1 32	- -	- -	6 × 6
C. Pahudiana -	-	-	-	-	- -	- -	- -	- -	93 3 32	—
1868:										
C. succirubra -	180,181	-	-	-	148 3 26	- -	- -	- -	- -	6 × 6
C. officinalis -	-	1,880	-	-	- -	0 1 15	- -	- -	- -	4 × 2
C. Pahudiana -	-	-	-	-	- -	- -	- -	- -	149 1 1	—
1869:										
C. succirubra -	287,729	-	-	-	237 3 6	- -	- -	- -	- -	6 × 6
C. officinalis -	-	3,153	-	-	- -	0 2 12	- -	- -	- -	4 × 2
C. Pahudiana -	-	-	-	-	- -	- -	- -	- -	238 1 18	—
1870:										
C. succirubra -	263,450	-	-	-	217 2 36	- -	- -	- -	- -	6 × 6
C. officinalis -	-	2,280	-	-	- -	0 1 35	- -	- -	- -	3 × 3
C. Pahudiana -	-	-	-	-	- -	- -	- -	- -	217 3 31	—
TOTAL -	867,400	9,413	547	1,720	716 3 16	1 3 21	0 1 32	0 3 37	720 0 26	

MONTHLY REPORT.

TABLE showing the Number and Distribution of CHINCHONA PLANTS on the Plantation of the Darjeeling Chinchona Association for the Month ending 30th September 1870.

Names of Species.	Number of Plants in permanent Plantation.	Number of Plants in Nursery Beds for permanent Plantation.	Number of Cuttings or Seedlings in Propagating Frames or Hardening off.	Number of Cuttings made during the Months.	Number of Stock Plants for Propagation.	Total Number of Plants, Cuttings, and Seedlings.
C. succirubra - - - -	8,67,400	2,20,530	2,80,401	88,000	15,000	14,71,331
C. calisaya - - - -	- -	-	900	- -	205	1,105
C. officinalis - - - -	9,413	- -	- -	- -	- -	9,413
C. micrantha - - - -	547	- -	- -	- -	- -	547
C. pandiana - - - -	1,720	- -	- -	- -	- -	1,720
TOTAL - - -	8,79,080	2,20,530	2,81,301	88,000	15,205	14,84,116

MEMORANDUM of Height and Growth of Plants, &c.

C. Succirubra.	Height on 30th June 1869.	Height on 30th September 1869.	Height on 31st December 1869.	Height on 31st March 1870.	Height on 30th June 1870.	Height on 30th September 1870.	—
Labelled.	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*	
V. Planted, May 1866	12 0	14 10	16 6	17 2	18 3	20 0	
V. 1. „ Aug. „	- Not measured		- -	17 10½	19 1	21 8½	
V. 2. „ Aug. „	- - ditto -		- -	17 4½	18 9½	21 2½	
N. 3. „ April 1867	11 6	14 7	16 3	17 3½	18 9	20 6	
O. 3. „ April „	10 3	13 2	14 6½	15 4	17 2	19 8	
L. 3. „ April „	- Not measured		- -	16 7	18 3½	21 3	
H. C. „ June 1868	5 5	7 1½	7 5½	7 6½	8 2½	10 6½	
H. D. „ June „	- Not measured		- -	8 8	9 11	12 10	
H. E. „ June „	- -	- -	- -	9 9	10 8	14 0	
X. T. „ June 1869	- -	- -	- -	- -	- -	8 5½	
X. U. „ June „	- -	- -	- -	- -	- -	8 1	
X. V. „ June „	- -	- -	- -	- -	- -	8 10½	
*M.A. „ July 1866	- -	- -	- -	- -	- -	4 10½	From cut stools.
*M.B.2. „ July „	- -	- -	- -	- -	- -	5 3	
*M.J. „ July „	- -	- -	- -	- -	- -	5 10½	
*C. pahudiana, planted June 1865.	- -	- -	- -	- -	- -	2 8	
C. officinalis, July 1866.	- -	- -	- -	- -	- -	10 0	
C. micrantha, July 1866.	- -	- -	- -	- -	- -	17 1½	

* Those marked with an asterisk are young shoots from the stocks of plants cut for bark in March 1870.

Poomong, 4th September 1870. *J. Munro*, Manager.

From *H. S. Beadon*, Esq., Officiating Under Secretary to the Government of Bengal, to the Honorary Secretary, Darjeeling Chinchona Association; 4th November 1870.

I AM directed to acknowledge the receipt of your letter dated the 5th ultimo, with its enclosure, and, in reference to the concluding portion of paragraph 4, to inform you that the Lieutenant Governor has as yet passed no Orders with a view to the extension of chinchona cultivation by Government.

2. The superintendent of the Botanical Gardens and in charge of chinchona cultivation has been called upon to report on the subject of your letter.

Enclosure 3, in No. 5.

From *A. O. Hume*, Esq., C.B., Officiating Secretary to the Government of India, Home Department, to The Officiating Under Secretary to the Government of Bengal, General Department; dated Fort William, the 16th December 1870.

I AM directed to acknowledge the receipt of your letter No. 3088, dated the 4th ultimo, relating to the cultivation of chinchona and the proposed manufacture of quinine in Bengal, and in reply to convey the following observations.

2. His Excellency in Council has perused with much interest Mr. Clarke's Report on the Sikhim chinchona plantations, and considers the progress heretofore made very satisfactory. His Excellency in Council is well aware of the deep interest taken by the Government of Bengal in this most important question, and feels that the extension of chinchona plantations will, under their auspices, be persistently and vigorously proceeded with. Some time, I am to remark, must necessarily elapse before any considerable extension of *C. calisaya* can take place, and in the meantime I am to suggest that attention might continue to be devoted to extending the area under cultivation with *C. succirubra.*

3. His Excellency in Council attaches the very greatest importance to this matter, and he believes that at little present cost, and with a certainty of considerable future revenue, forests of chinchona may be reared in Sikhim, which by furnishing at a comparatively cheap rate, large quantities of quinine will prove hereafter an unqualified blessing not only to the whole of India, but to the civilised world.

4. Expenditure must of course be kept within the narrowest limits compatible with the attainment of the great national objects in view; but, due regard being had to economy, his

his Excellency in Council will be prepared to support warmly any proposals approved by his Honor the Lieutenant Governor for the immediate extension of the *C. succirubra* plantations as well as for the gradual creation of others of *C. calisuya.*

Enclosure 4, in No. 5.

From *A. O. Hume,* Esq., C.B. Officiating Secretary to the Government of India, Home Department, to the Secretary to the Government of Bengal; dated Fort William, the 24th December 1870.

I AM desired to state, for the information of his Honor the Lieutenant Governor, that, in the opinion of his Excellency the Governor General in Council, the time has now come for a preliminary decision as to how the chinchona bark, &c., produced at the Government plantations at Darjeeling, the supply of which is even now considerable and will yearly rapidly increase, may be best utilised.

President.

Members.
Mr. Clarke, Officiating Superintendent of the Botanical Gardens.
Mr. Simpson.
Mr. Broughton.

2. His Excellency in Council therefore proposes, if his Honor sees no objection, to appoint a Commission as per margin to consider and report upon this important question. The nomination of the President his Excellency in Council would leave to his Honor the Lieutenant Governor, only remarking that in his opinion the gentleman chosen as President should be an officer of some rank and standing. If possible, he should be an officer attached to the Presidency, so that his employment on this special duty may entail as little extra expense as may be.

3. The Commission would be specially instructed to consider, amongst other matters, whether on general as well as economical grounds, it would be best—

(1.) to send home the whole of the bark which bears a marketable value; or,

(2.) to extract by a single process all soluble matter from the bark and send home the gross proceeds of the first precipitation; or,

(3.) to proceed further with the manufacture in India, and, if so, how much further whether (*a*) only so far as is necessary to separate the several alkaloids from the resin colouring matter and other foreign elements which the first precipitate will contain; or (*b*) as far as the manufacture of the pure sulphate of quinine?

4. Should the Commission recommend the second or third alternative, they will have to consider what processes will, under all the circumstances of the case, be most likely to prove appropriate.

5. A certain per-centage of the total yearly yield of bark will, owing to its extreme poverty in alkaloids, always be unfit for the home market; it will be for the Commission to inquire how this bark may be most profitably dealt with here.

6. It is also believed that a valuable febrifuge can be readily extracted from the leaf of *some* species, at any rate, of the chinchona, and this also as well as other kindred questions will appropriately form subjects for the inquiries of the Commission, whose sittings would be in the first instance in Calcutta, but who might later, if it proved desirable, be deputed to visit the plantations themselves.

7. In conclusion, I am to remark that his Excellency in Council is well aware that any conclusions we may now come to on these subjects will, when a larger experience affords no better data than now exist, doubtless need considerable modifications, at the same time he is of opinion that the speedy adoption of some regular system (the best that the existing state of our knowledge may enable us to devise) of dealing with the produce of our growing cinchona plantations is most essential, and he is of opinion that the most probable method of securing this object is the appointment, as above suggested, of a Commission composed for the most part of gentlemen who have made these questions their especial study.

8. A resolution in the sense of the above letter will issue as soon as the concurrence of his Honor, and the name of the officer he may nominate as President, shall have been notified to his Excellency in Council.

Enclosure 5, in No. 5.

From *R. Thompson,* Esq., Officiating Secretary to the Government of Bengal, in the General Department to *E. C. Bayley,* Esq., C.S.I., Secretary to the Government of India; dated Fort William, the 15th November 1870.

No. 478, dated st February 1870, o. 3088, dated h November 1870.

No. 3230, dated thNovember 1870.

IN continuation of the letters noted on the margin,* I am directed to forward a copy of a letter, No. 223, dated 24th October, from Mr. Clarke, Officiating Superintendent of the Botanical Gardens, and in charge of the Chinchona cultivation in Bengal, together with a copy of the Orders† passed by the Lieutenant Governor thereon, relative to the prosecution of the experiment of quinine manufacture on the Rungbee plantation at Darjeeling.

2. After

2. After the sanction given by the Lieutenant Governor, on the 21st February last, to the trial of the method proposed by Mr. Clarke for the extraction of the quinine alkaloid from chinchona bark, that officer, with the Lieutenant Governors approval, proceeded to the Neilgherries in March, and, in communication with Mr. Broughton, the Government Quinologist, examined the process in operation at the manufactory in Madras. The valuable information obtained by this visit, and the result of Mr. Clarke's inquiries, will be found detailed in paragraphs 32 to 39 of his letter of the 1st July 1870, which accompanied the letter of the 4th November. Mr. Clarke's present letter describes his later proceedings since his return from Ootacamund, and the measures he contemplates in furtherance of the experiment, for which the following proposals are submitted for the sanction of Government:—

(1.) The construction of copper boilers at the Government dockyard at a cost of 5,000 rupees.
(2.) Also of a press at a cost not exceeding 2,500 rupees.
(3.) To obtain a patent fractional still from England at a cost of 75 *l.*
(4.) To sanction an outlay of 500 rupees, in addition to 2,500 rupees sanctioned in February last, for the construction of certain machinery at the dockyard.

3. The Lieutenant Governor has sanctioned these proposals, the charges involved being debitable to the current Budget grant for chinchona cultivation.

4. With reference to the 7th paragraph of the Officiating Superintendent's letter, I am desired to say that, in view of the great assistance which may be obtained from Mr. Broughton's knowledge and experience, the Lieutenant Governor will be glad if the request made for the deputation of that gentleman to Darjeeling in February or March next can be complied with.

From *C. B. Clarke*, Esq., M.A., Officiating Superintendent of the Botanical Gardens, and in Charge of Chinchona Cultivation in Bengal, to the Secretary to the Government of Bengal; dated Rungbee, Darjeeling, the 24th October 1870.

THE Government of Bengal, by their letter, No. 476, of 21st February 1870, sanctioned my commencing an experimental manufacture of quinine on this plantation, the gross outlay on such experiment not exceeding 2,500 rupees, and further sanctioned my paying a visit to Ootacamund to consult Mr. Broughton, the Quinologist to the Government of India, and to see the manufacture he had commenced there of the bark from the Government chinchona plantations in the neighbourhood.

2. I accordingly visited Ootacamund in March and April last, where Mr. Broughton afforded me every facility for observing the manufacture of chinchona alkaloid which he was there carrying on. This chinchona alkaloid (called by Mr. Broughton amorphous quinine) had at that time given great satisfaction to the medical officers of Madras, as possessing the therapeutic qualities of commercial sulphate of quinine. Its manufacture requires much less expense than that of the crystallised sulphate, and I returned from Ootacamund convinced that the manufacture of this chinchona alkaloid could, without doubt, be carried out successfully at Rungbee.

3. Under this conviction I have not so much made any further experiment in manufacturing different product from bark, but have expended somewhat more than 3,000 rupees in machinery of a very durable kind, calculated for carrying out the manufacture of cinchona alkaloid exactly as performed by Mr. Broughton. This expenditure has been chiefly by a book debit for work done at the Government Dockyard in Kidderpore, the only other considerable outlay being about 75 *l.* for a patent fractional still, not yet received complete from England.

4. The result of my attempts to imitate Mr. Broughton's process has been very encouraging, the later experiment in particular having given a very fine alkaloid, and the expenditure of alcohol in the process diminishing rapidly with increased experience. But I do not expect to be able to produce chinchona alkaloid to any economic advantage until the fractional still is at work, and I am therefore carrying on work on a very limited scale.

5. From the middle of December to the middle of February the sap is down, and the bark cannot conveniently be stripped. The Rungbee Plantations require considerable thinning and pruning before next growing season. My present plan is to perform this thinning and pruning regularly from present date up to the middle of December, and recommence as soon as practicable in February. Of the bark taken off before the middle of December, I propose to send the prime portion for sale in London, and to boil down here the inferior bark from young shoots which will not well bear the expense of carriage to London.

6. I hope the fractional still may be completed and mounted before the end of January, and I desire now to suggest to Government that, during the cold weather, the necessary preparations for boiling down bark on a considerable scale be made. This will require a

large shed, which can be built here of bamboos at a small cost, and a number of large copper boilers, which can be made at the Kidderpore Dockyard. I request that sanction be given me to order such boilers to the extent of 5,000 rupees at the Kidderpore dockyard, and other machinery, especially a powerful press, to the extent of 2,500 rupees. The budget for the current year for this plantation will be ample to meet these charges; and I may add that, whatever particular course of manufacture be adopted, the class of machinery which I contemplate will be utilisable therein.

7. I beg leave also to propose that the Government of India be asked to direct Mr. Broughton to pay a visit to this plantation in February or March next, as most convenient to him, with instructions to report on the general question of manufacture here and particularly on the staff to be employed. I need hardly point out that the Government interest involved will be very large, and that it will be well that Government should avail itself of all advice of skilled officers at its command. Moreover, the conditions of manufacture here are, as regards cost of material, price of fuel, and numerous other details, exceedingly different from the conditions existing on the Neilgherries, and it is probable that minor differences in the course of the manufacture, producing considerable economy in the result, may be suggested by Mr. Broughton's experience.

From *H. S. Beadon*, Esq., Officiating Under Secretary to the Government of Bengal, to *C. B. Clarke*, Esq., M.A., Officiating Superintendent of the Botanical Gardens, and in charge of Cinchona Cultivation in Bengal; dated Fort William, the 15th November 1870.

I AM directed to acknowledge the receipt of your letter, No. 223, dated 24th October, and in reply to communicate to you the Lieutenant Governor's sanction to the proposals submitted by you, as specified below, in connection with the manufacture of amorphous quinine from the bark of the chinchona grown at Darjeeling, viz.:—

(1.) Expenditure of 500 rupees in excess of the sum of 2,500 rupees granted for the experiment under Orders No. 476, dated 21st February 1870, for the construction of machinery at the Government dockyard.

(2.) Outlay of 750 rupees for the cost of a patent fractional still ordered out from England.

(3.) Construction of boilers at the dockyard, at a cost of 5,000 rupees.

(4.) Also of a press, the cost not to exceed 2,500 rupees.

2. These charges, aggregating 8,750 rupees in addition to the amount sanctioned on the 21st February last, or altogether a total of 11,250 rupees, will be debitable to the Budget allotment under the head of Chinchona Cultivation for the current year.

3. In accordance with the suggestion contained in the 7th paragraph of your letter, application will be made to the Government of India for the deputation of Mr. Broughton to visit the Darjeeling chinchona plantations in February or March next.

Enclosure 6, in No. 5.

From *A. O. Hume*, Esq., C.B., Officiating Secretary to the Government of India, to the Secretary to the Government of Bengal, General Department; dated the 24th December 1870.

I AM directed to acknowledge the receipt of your letter, No. 3232, dated the 15th ultimo, on the subject of the manufacture of quinine in this country, and to observe that the Governor General in Council attaches very great importance to the experiment which is in progress at Darjeeling.

2. Concurring in the Lieutenant Governor's opinion that Mr. Broughton's advice and assistance would be of great value in the furtherance of the project, his Excellency in Council has made a reference to the Madras Government, inquiring whether that officer's services can be spared for a short time without detriment to other important work on which he may be engaged. The result of this reference will be duly communicated to you.

3. I am at the same time desired to remark that, if the Madras Government agree to lend Mr. Broughton's services, the extensive knowledge and experience possessed by him in the cultivation of chinchona and manufacture of quinine should, his Excellency considers, be, in the first instance, utilised in the inquiries suggested in my letter, No. 5679, of this day's date by appointing him a member of the proposed Commission.

Enclosure 7, in No. 5.

From *A. O. Hume,* Esq., C.B., Officiating Secretary to the Government of India, to the Secretary to the Government of Madras; dated the 24th December 1870.

I AM directed to forward to you copy of a correspondence* with the Government of Bengal on the subject of the manufacture of quinine in this country, from which it will be seen that it has been proposed to the Lieutenant Governor that the best plan for the settlement of many doubtful points in connection with this important question would be to appoint a Commission, and that it has been suggested to his Honor that it would be advisable to secure the services of Mr. Broughton, the Government Quinologist at Ootacamund, in the Commission, as his advice and assistance would be of very great value. The Government of Bengal also is anxious to have the benefit of Mr. Broughton's knowledge and experience, and has recommended his deputation to Darjeeling to assist in carrying out an experiment that is in progress at the chinchona plantation at that station.

To Government of Bengal, No. 5679, dated 24th December 1870.
From ditto, No. 3232, dated 15th November 1870.
To ditto, No. 5680, dated 24th December 1870.

2. Under these circumstance, I am desired to inquire whether the Madras Government cae spare Mr. Broughton's services for a short time without detriment to the other important work on which he is engaged. The Governor General in Council attaches very great importance to the experimental operations being carried on at Darjeeling, which, if successful, will result in immense advantages not to the Lower Provinces alone, but to the whole of India; and his Excellency in Council will be much obliged if the Madras Government can arrange for the proposed deputation of Mr. Broughton.

Enclosure 8, in No. 5.

TELEGRAM dated the 19th January 1871.

From—Madras	To—Calcutta.
From—Revenue Secretary	To—Home Secretary.

YOUR letter of 24th December 1870. When, and for how long will Mr. Broughton be required for the Commission?

Enclosure 9, in No. 5.

From *W. M. Souttar,* Esq., M.A., Officiating Under Secretary, to the Government of India, to the Secretary to the Government of Bengal, General Department; dated the 21st January 1871.

WITH reference to the letters from this Department noted on the margin, I am directed to forward copy of a telegram from the Government of Madras, inquiring when and for how long Mr. Broughton's services will be required to assist in the settlement of the questions to be considered in connection with the manufacture of quinine in this country; and I am to request that his Honor the Lieutenant Governor will favour the Government of India with the earliest possible reply to the Orders of the 24th ultimo, suggesting the appointment of a Commission to report on the subject. Until the receipt of such reply, no answer can be given to the inquiry made by the Madras Government.

No. 5679, dated 24th December 1870.
No. 5680, dated 24th December 1870.

Enclosure 10, in No. 5.

From *Rivers Thompson,* Esq., Officiating Secretary to the Government of Bengal in the General Department, to the Officiating Secretary to the Government of India in the Home Department.

Sir, Fort William, 23 January 1871.

I AM directed to acknowledge the receipt of your letter, No. 5679, dated the 24th December 1870, suggesting the appointment of the gentlemen named on the margin to form a committee for the purpose of considering and reporting on the question of utilising to the best advantage the chinchona bark produced on the Government plantations at Darjeeling, and asking the Lieutenant Governor to nominate the president of the committee.

Mr. Clarke, Officiating Superintendent of the Botanical Gardens.
Dr. Simpson.
Dr. Broughton.

2. In reply, I am to say that the Lieutenant Governor would suggest either Dr. Campbell Brown, the officiating inspector general of hospitals, or Dr. D. McDonald, the principal medical storekeeper, as president of the committee.

I have, &c.
(signed) *Rivers Thompson.*

Enclosure 11, in No. 5.

TELEGRAM dated the 24th January 1871.

From—Calcutta	To—Madras.
From—Home Secretary	To—Revenue Secretary.

YOUR telegram of the 19th. Mr. Broughton is required as soon as possible, and may be detained for about a month.

Enclosure 12, in No. 5.

RESOLUTION.

Fort William, 2 February 1871.

EVER since the introduction of the cultivation of the chinchona plant in this country, the Government of India has watched with the deepest interest the progress of the experiment, feeling convinced that its success would be fraught with the most beneficial results to the whole population of India. The advantages to be derived from the successful cultivation of chinchona cannot be over-estimated, as the object is to secure to the country at large the greatest medical boon that could be afforded to it, that is, to place within the reach of the masses of the people, at the lowest possible rates, the only effective specific that science has yet discovered for the commonest of Indian diseases.

2. That the cinchona plant, *C. succiruba* at any rate, can be grown to any extent in British Sikhim has now been indisputably established by the results that have already been achieved at the Government plantations; and the Governor General in Council fully believes that at little present cost, and with a certainty of considerable future revenue, forests of chinchona may be reared in Sikhim which, by furnishing large quantities of quinine, may hereafter prove a blessing not only to India but to the civilised world.

3. Already the Government plantations in Sikhim yield a considerable supply of excellent bark, and year by year a rapid increase in this supply may be looked for; the Governor General in Council, therefore, thinks that the time has come for a preliminary decision as to how this supply can best be utilised. This view of the case is confirmed by a very interesting Report submitted by Mr. Clarke in regard to the experimental manufcature of amorphous quinine at Darjeeling. His Excellency in Council is of opinion that the best mode of settling the many doubtful points connected with this important question is the appointment of a Commission to inquire into and report on the whole subject; and in communication with his Excellency the Governor of Madras and his Honor the Lieutenant Governor of Bengal, he is pleased to nominate the gentlemen named in the margin, to form the proposed Commission.

Dr. Campbell Brown, *President.*
Mr. Clarke,
Dr. Simpson. } *Members.*
Mr. Broughton.

4. His Excellency in Council is well aware that any conclusions that may now be arrived at will doubtless need considerable modifications, when a larger experience affords better data than at present exist. He is at the same time of opinion that it is essential to adopt without delay some regular system, the best that can be devised in the existing state of our knowledge, for dealing with the yearly increasing produce of the chinchona plantations.

5. The Commission will have to consider, among other matters, whether, on general as well as economical grounds, it would be best—

(1.) To send home the whole of the bark which bears a marketable valuable; or,

(2.) To extract by a single process all soluble matter from the bark, and send home the gross proceeds of the first precipitation; or,

(3.) To proceed further with the manufacture in India; and, if so, how much further; whether (*a*) only so far as is necessary to separate the several alkaloids from the resin, colouring matter, and other foreign elements which the first precipitate will contain; or (*b*) as far as the manufacture of the pure sulphate of quinine?

6. Should the Commission recommend the second or third alternative, they will have to consider what processes will, under all the circumstances of the case, be most likely to prove appropriate.

7. A certain per-centage of the total yearly yield of bark will, owing to its extreme poverty in alkaloids, always be unfit for the home market; and it will be for the Commission to decide how this bark may be most profitably dealt with here.

8. It is also believed that a valuable febrifuge can be readily extracted from the leaf of

of some species of the chinchona; and this point also, as well as many other kindred questions which will suggest themselves as the inquiry proceeds, will appropriately form subjects for the consideration of the Commission, whose sittings should be in the first instance in Calcutta, but who may later, if it be considered desirable, be deputed to visit the plantations themselves.

9. The Commission will carry on their inquiries under the orders of the Lieutenant Governor of Bengal, and will submit their final Report to that authority.

Ordered, That a copy of this resolution be forwarded to the Government of Bengal for information and guidance.

(signed) *A. O. Hume,*
Officiating Secretary to the Government of India.

— No. 6. —

(No. 28—Public.)

From the Secretary of State to the Government of *India.*

My Lord, India Office, 4 April 1871.

Para. 1. I HAVE received and considered in Council the Despatches of your Excellency in Council, dated 14th December (No. 128) 1870, and 15th February (No. 19) 1871, on the subject of chinchona cultivation in British Burmah and Sikkim.

2. The cultivation in Sikkim has reached a point at which it is desirable that some definite course should be adopted with a view to the utilisation of the bark, and to securing the main object of introducing chinchona cultivation into India. Your Government have very accurately defined this object in their Resolution of 2nd February 1871, to be "the placing within the reach of the masses of the people, at the lowest possible rates, the only effective specific that Science has yet discovered for the commonest of Indian diseases."

3. The appointment of a Commission to report upon the course that should now be adopted with regard to utilising the product of the plantations at Darjeeling, is a measure which has my full approval. Last year I called upon the Madras Government to consider the same points which you have now submitted to your Chinchona Commission, with regard to the Neilgherry plantations, and I have recently received detailed Reports upon the subject, which contain practical suggestions and proposals of great value. These Papers will be in your hands, and copies will no doubt be furnished to the Commission. Mr. Broughton and Dr. Simpson are both practical chemists. The former has studied the subject with great care, among the Neilgherry plantations, for three years, and the latter, after acquiring a knowledge of the cultivation at Darjeeling, has recently received instruction in the laboratory of Dr. De Vrij, one of the foremost of living quinologists. I look forward, with interest, to receiving the Report of the Commission, and of the proceedings of your Government after having considered the recommendations of the Commissioners.

4. There is one circumstance that should be borne in mind with reference to the bark trade. The supply of ordinary chinchona barks is practically unlimited from South America, and the only barks that will yield a permanently remunerative return, if imported from India, are those of the best description. The ordinary kinds of bark and that of *C. succirubra*, will be suitable for the supply of amorphous quinine in large quantities for use in India, but bark intended for exportation should be of superior quality, such as would really meet the demands of the European markets. The efforts of chinchona cultivators in India, who merely undertake the work as a commercial speculation, should be turned to the production of barks having the richest yield of crystallisable quinine

5. I observe, among the papers forwarded with your Despatch, dated 15th February 1871, a letter from the Honorary Secretary of the Darjeeling Chinchona Association, complaining that its members were induced to stake their capital in an undertaking in which they only expected competition with private individuals, while, in fact, they have been brought into ruinous competition with the Government itself. I have already expressed my opinion on this point to the Government of Madras. It should be clearly understood that the Government have no intention of embarking permanently in the bark trade. In sending their chinchona bark to the London market, one object is certainly to repay the cost of introduction and experimental cultivation of the plants; but the principal intention of the Government, in sanctioning this measure, is to act as a pioneer in establishing the reputation of Indian-grown barks, and not to injure the prospects of private planters, whose success would give the Government very great satisfaction.

6. I disapprove of the disparaging remarks in Mr. Clarke's Report, dated 1st July 1870, on Mr. Howard, the quinine manufacturer, to whom the Government is indebted for several valuable and laborious analyses, and for much useful advice and assistance.

I have, &c.
(signed) *Argyll.*

— No. 7. —

(No. 34—Public.)

From the Secretary of State for *India* to the Government of *India*.

My Lord, India Office, 27 April 1871.

1. I HEREWITH transmit a copy of an analysis by Mr. Howard, the quinine manufacturer, of the preparation from chinchona bark which has been manufactured at the Sikkim plantation, with a view to an extensive trial of its therapeutic effects. Your Excellency in Council will perceive that the preparation contains a very large per-centage of copper, and that it is consequently inadmissible as a medicine. Orders should at once be issued forbidding its use.

2. I take this opportunity of drawing the attention of your Lordship's Government to the great importance of insisting upon a thorough knowledge of organic chemistry, and of the branch of that science relating to quinology, as an essential qualification for any officer who may be appointed to succeed Dr. Anderson in the charge of the chinchona plantations.

I have, &c.
(signed) *Argyll.*

Enclosure in No. 7.

From Mr. *J. E. Howard* to the Under Secretary of State for *India*.

REPORT on the Sample of Powdered Alkaloids.

Sir, April 1871.

I HAVE examined this specimen with much attention, pursuing three different lines of inquiry, as it presented points of scientific interest. A mere estimate of commercial value might be completed in a few days, in case the article should be brought into the market in future.

As a medicine it is inadmissible in its present state, owing to the amount of copper which it contains, sufficient to coat a blade of another metal with a continuous film of this ingredient; to which in any quantity the Faculty would, I presume, object, as also to the uncertain nature of the mixture generally.

As a preparation to be used by the quinine manufacturer, it would not command a price at all equal to the expectations of the producer, since the bark from which it was made would doubtless fetch much more in the market. One reason for this is the difficulty arising

arising in purifying the alkaloids. It is probable that, in the preparation, the bark has been used in a green state, and the alkaloids have been precipitated together with the altered chlorophyle.

This green colouring matter of the leaves passes with gradual alteration into the bark of the branches. It is, when precipitated, greedy of oxygen, and in some respects there is a considerable analogy to indigo. The part which this may play in the natural formation of alkaloids requires to be studied; but the effect in this compound does not appear to be good. A part of the alkaloid soluble in either is in a state which passes quickly into that of quinoidine under the influence of the air and light, and this is the portion most intimately allied to the altered chlorophyle.

The alkaloids appear to be cinchonine, quinidine (pasteur), cinchonidine, quinine, and uncrystallisable quinine.

Yours, &c.
(signed) *John Eliot Howard.*

— No. 8. —

(No. 53—Public.)

From the Secretary of State for *India* to the Government of *India.*

My Lord, India Office, 29 June 1871.

I HEREWITH transmit, for distribution among officers and others connected with chinchona cultivation, 80 copies of Dr. Weddell's recent Paper on the Classification of the Chinchona Genus, which I have caused to be translated from the French, and printed; and 30 copies of Mr. Cross's Report on his recent mission to collect plants and seeds in the Pitayo chinchona forests in New Granada.

I have, &c.
(signed) *Argyll.*

Enclosure in No. 8.

REPORT on the Collecting of SEEDS and PLANTS of the CHINCHONAS of *Pitayo.*

From Mr. *Robert Cross* to the Under Secretary of State for *India.*

Sir, Glasgow, 13 March 1871.

WHEN the first collection I made of seeds of the quinine trees of Pitayo did not come up, I did not hesitate to undertake again to make another, which, I have been glad to learn, has germinated, and is now growing in India.

After my second journey to Pitayo in 1865, I returned to Quito completely debilitated by the ague, which is so common in the ravines near the Patia valley. Although I remained for some time in the Ecuador, I subsequently returned home in January 1867. Mr. Markham was of opinion that I must not go again to collect until I was well; therefore I did not proceed until the spring of 1868. Meantime, when about to make preparation for the journey, Mr. Markham went to Abyssinia, but before going he made arrangements about my journey, as far as these could be made at the time. Indeed, I delayed longer than I at first intended, on account of the severity of the season.

On arrival in London in April 1868, some difficulties which required explanation were put right by Mr. D. Hanbury and Mr. Howard, the last of whom was asked to write me a letter of instructions, which Mr. Howard kindly consented to do. Mr. Howard thought it would be better for me to proceed by Colon and Panama, than by steamer to Buenaventura, proceeding afterwards by canoe up the River Dagua, and, after traversing the western Cordillera, to travel up the Cauca and Popayan valleys to the Pitayo forests, which occupy a portion of the western slopes of the central Cordillera. There "my attention should be directed to the collection of seeds, and, if possible, also of small plants of *all the species of Pitayo* which have been found useful in commerce." This, along with other remarks, was accompanied with choice specimens of the best kinds of bark, one of which was the "Palton," a saffron-coloured bark found south of Cuenca. I received Mr. Howard's instructions on the 15th of April, along with others from the India Office, providing me with passports, which were excellently arranged, and which facilitated everything for me during all the time I was in New Granada.

Proceeding from Southampton on the 17th of April by the Royal Mail Steam Packet Company's steamer "Douro," I came to Colon on the 9th of May, and on the same day

crossed the Darien isthmus. The journey across the isthmus is performed by rail, the distance being hardly 47 miles, which costs 5 *l.* in English or American gold. Arriving at Panama, I found on inquiry that I would have to wait 16 days for the steamer which touches at Buenaventura on her way south. This stay was very inconvenient in such a glowing temperature, with reports of yellow fever here and at other places on the Pacific coast. The city was quiet and listless, but occasionally some newspapers could be found at a shop kept by a "States' negro," who might be seen frequently on the public pathway cooling himself with a fan. The local newspapers here, "Star and Herald," and "Mercantile Chronicle," have done good service in advocating sanitary improvements, and also brushing away the immense amount of priestly cobweb and fungus which used to envelope these regions.

Panama is proverbially unhealthy. The people who live here for any length of time assume an olive or green colour, and are dried up to skin and muscle.

Some things are seen at Panama which I have not observed elsewhere. Thus, when a train comes across the isthmus with passengers from New York for California, an *escolta* of New Granada Government soldiers are told off by an officer to the doors of the carriages, where they stand to prevent the very singular conduct of some passengers when leaving. Certain nationalities appear highly incensed at this military precaution. I believe *escoltas* are not considered necessary when the passengers are direct from Europe.

As already indicated, yellow fever often prevails at Panama; indeed, according to the assertions of some, it is never away from the place. It appears that one of the most certain securities for the continuance of fevers in general is impure water. At Colon, St. Thomas, and some other places, the inhabitants have to depend chiefly on rainwater, which is hoarded up in ill-constructed tanks, until it has become completely pestiferous.

On 26th May, I went at daybreak to see Mr. Henderson, Her Majesty's Consul, to arrange for the transfer of communications, &c., and found him hard at work, when most people were as yet only preparing to move about. Later in the day I embarked in the steamship "Talca," Captain Chambers, and on 29th May, came to Buenaventura. Outside the bay, the shore is lined with low cliffs or detached masses of rock, but these, as well as the mainland, are covered by bushes or forest. The bay of Buenaventura is from three to six miles in width, and from the ocean to the island, near the head of the bay on which the town of Buenaventura is built, the distance will be 30 miles. Towards the upper limit of the bay the land on each side is flat and sandy, and when the tide is out, a broad piece of slightly sloping shore is seen, consisting of fine sand and mud, over which one may travel barefoot, but sinking perhaps at times to the knee. There is no swell here, so that loaded and empty canoes lie about along the shore, and are not injured. The island on which the town is built is three miles in length, with an average breadth of one quarter of a mile. A low ridge of red clay, 100 feet high, runs along the centre of the island. The town, containing 600 or 800 inhabitants, chiefly negroes, is situated on a narrow margin of low flat land, on the western side of the island near the sea-shore. A number of springs of good water are scattered over the slopes, which supply the town, but the quantity is rapidly diminished if the weather is dry for a few days, and when this happens fevers are said to become much more frequent. The climate of Buenaventura is hot, damp, and most unhealthy, and I can testify that Guayaquil or Panama are airy places in comparison. Before leaving Panama, Mr. Henderson, Her Britannic Majesty's Consul, kindly gave me a letter of recommendation to Señor Vasques Cordova, Her Majesty's Vice Consul *pro tem.* at Buenaventura. This gentleman, previous to my arrival, had gone to the city of Cali, but his agent, Señor Don Jaime Otero, procured a room, and also assisted me in making arrangements for ascending the River Dagua. The house in which I was located was built chiefly of bamboos, thatched with palm leaves, and was situated close on the edge of the bay.

On getting up in the morning of the day after my arrival, when about to go out, I saw two poisonous looking spiders, as large as one's hand, spread out on the wall close to the door. In order to dislodge them, I got my umbrella and beat the wall, when they immediately began to swing rapidly from one place to another, and at last ascended towards the roof. Snakes are here very abundant and dangerous, so much so that when any one is bitten there is hardly any hope of recovery.* According to the San Juan Indians, the venomous action of a snake bite is immediately fatal, if at the time the reptile is in the period of "calor" or procreation. This notably accounts for several cases of instant death which have occurred by snake bites in localities where I have travelled on the Pacific coast, and in hot valleys of the interior. In these instances death appeared to take place by asphyxia. At other times, the action of the poison is more protracted, and for such occasions the best remedies are said to be spirits, quinine, and ammonia. Scorpions are abundant both at Buenaventura and Panama.

On 31st May, Señor Otero said he had so arranged that I might proceed up the river that night, although I had previously stated that I wished to travel on the following day. However, as the two men requisite and the canoe were ready, I embarked a little after dusk. On going two miles to the southward, we entered the course of the River Dagua. Here, on proceeding a hundred yards or so, the men said they felt sleepy, and wanted to go

* So far as my observations go, snake bites do not prove fatal in tropical America, above an elevation o 3,000 feet.

go to rest in a dwelling close on the river bank. As I made no objection, they did so, while I remained all night in the canoe, a portion of which, although very confined, had a little thatched roof of palm leaves overhead, but I passed a miserable night, amidst the incessant hissings of insects and reptiles, and croaking of frogs.

Early on the morning of the 1st of June we began the ascent of the river, the men pushing the canoe forward with long poles, or, when passing the rapids, the canoe was kept as near to the river bank as possible, so that the men might at any moment relinquish the poles, leap into the river, and pull the canoe up difficult or dangerous places. Even at the beginning, the current ran with considerable force, which visibly increased as we went forward. On the banks of the river there are some families of negroes, living in very badly-constructed huts, with a few bananas and plaintains growing around. These negroes seem to have little intelligence of any kind. Physically they are excessively lean and deformed, and more than one half are afflicted with sores or some species of disease, such as *lepra* or *elephantiasis*. Undoubtedly, the atmosphere of the flat low-lying regions on each side of this river, filled with the pestiferous exhalations from vast masses of rank vegetation, and from the decomposition of many millions of reptiles and swarms of insects, may cause, or, at least, assist in developing such maladies, but so it is, that the negro race located in tropical America seems very susceptible of these diseases. This appears to be more especially the case in places where the white race has not penetrated, or, at least, where their appearance is comparatively rare; for, despite all that has been said about negro intelligence and capabilities for self-government, it seems to me certain that the presence of a few or many members of the white race is both a necessity and a positive blessing to the negroes. This may be partially explained by the introduction of superior methods in the construction of houses, cultivation, sanitary arrangements, and many other matters. The land on each side of the river was of a sandy nature, bearing a magnificent vegetation. In some places the subsoil consisted of blue clay in very thin layers, which, until examined, looked like stone. On ascending the river farther, the land begins to rise towards the western Cordillera, and here I observed large masses of stone which appeared like pebbles soldered together, and this kind of rock higher up seems to form the foundation of the mountains. About four o'clock we disembarked at the house of a negro on the river bank, where we stayed for the night. Such is the fertility of the land here that I was assured that "it would give sugar-cane in less than six months, and bananas or plaintains, if planted out, would produce fruit in eight months." The soil here is of a productive nature, and favourable to rapid growth, consisting in great part of sand, on which rests a deep layer of vegetable earth, produced by the decomposition of forests for centuries. This kind of soil, moistened by almost daily rains, and subjected to an excessively high temperature, is capable of supporting a most luxuriant vegetation.

May 2nd, as we continued to ascend, the current became violently strong, and there were massive stones, with trunks and roots of trees, partially embedded in sand and gravel, in the bed of the river. The Indians here descend the rushing waters of the Dagua with great rapidity, amidst large boulders and masses of rock, directing their canoes with uncommon judgment and precision. The dangers in navigating this river may be understood from the fact that, on one occasion, eight canoes were lost in succession at one of these rapids. The navigation, indeed, of any part of the Dagua is barbarism. As we continued the ascent, we had to go up several fords where the water was not deep enough for the canoe, but in such places a kind of canal has been made by removing the stones, although this requires to be renewed frequently, as the current soon fills it up. In the afternoon I disembarked at a little village, called Pureto, which owes its origin to the parties who were employed by the Government in making a road from Cali to Buenaventura. Bats are numerous here, which fasten on one when asleep, and draw a quantity of blood. In this way, children, when not protected by a netting or other contrivance, very soon become weak and die.

On the 3rd of May, I travelled along the left bank of the Dagua river, over the road which has only lately been opened up. This way, which is very narrow, leads along the edge of some stupendous precipices, which descend to the Dagua, while above are large overhanging cliffs of naked rock. After a journey of four hours, we crossed by a good bridge to the right bank of the Dagua, at a place where there is a small village, called Las Juntas, which existed before the conquest, and is situated on a narrow piece of land immediately above the junction of a considerable stream, called Pepita, with the River Dagua. This was formerly the highest point reached by canoes on the Dagua. Las Juntas may contain 200 inhabitants, of mixed whites, Indians, and negroes. Gold is washed on the banks of the river, nearly all the way from the outlet of the Dagua to Las Juntas, but the methods employed are slow, and the quantity obtained very trifling, although the gold is of superior quality. Leaving Las Juntas, we climbed up a lofty ridge, on the one side of which ran the Pepita, and on the other the Dagua. At an elevation of 1,000 feet above Las Juntas we halted at a place called Puerta (door), where there is one or two houses, and at this point the ridge extends both in width and height to a massive mountain, the summit of which is covered with forest.

On the morning of the 4th, we crossed the mountain summit, at an elevation of 6,000 feet above the level of the sea, and at 2 p.m. we descended the eastern slope of the ridge, going down declivities of loose *débris*, consisting chiefly of slate rock, so much decayed that it was nearly as small as rough sand. Then the way, turning a little to the northward, down dry slopes thinly wooded with leguminous trees and shrubs, brought us again

to the southern bank of the River Dagua. Proceeding upwards, we crossed over to the northern side of the river, and travelled along the bank for three miles, when the way again led to the southern side, where, after going a short distance, we recrossed the river, and ascended for about a mile a low ridge of red clay, on the crown of which is a small village, called Papagallero. I remained at a house in the vicinity of this village for the night. Here the low hills of the surrounding districts are of red clay. This is easily seen by the depressions in the landscape around the village, which seem to be of frequent occurrence. This depression or subsidence of the surface in certain places might be referred to local earthquakes, which, although on a very modified scale, so as not to be perceptible, are undoubtedly of frequent occurrence, and to these may be attributed the displacement to a distance of four or five feet of tracts of land several leagues in extent, an instance of which I myself happened to see near La Union, on the edge of the Patia Valley. 5th June, I left Papagallero and went up the northern bank of the Dagua for a league, then crossed to the southern side and travelled a distance of six miles, when I had to cross again to the north bank, along which I journeyed till late in the afternoon, when I stopped for the night on the river bank at a place called Vado Hondo (deep ford). On the 6th of June on leaving we crossed the Dagua and went up its southern bank for two miles, then returned* to the northern side at a place called Tocota. Here there were two houses inhabited by negroes. All the way to this place the banks of the river present many obstacles, such as quagmires, landslips, boulders, steep slopes, and cliffs, for which reason the river has to be crossed and recrossed so often. The Dagua is a little formidable to Vado Hondo, but from that place upwards it diminishes with astonishing rapidity, so that at Tocota it dwindles down to a common stream, containing, as the Spaniards say, "two mills of water," or as much water as would be required to drive two flour mills. At Tocota, we finally left the Dagua after so much splashing, and pursued an eastward course up a massive ridge of mountains, which was clothed with dense green forests to the summit. This range, which forms the true ridge of the western Cordillera, ran from north to south, or more or less in that direction, and the general elevation will be at least 6,000 feet. The ascent of the ridge occupied two hours of hard travelling, and one hour more in crossing the summit, where among other plants I saw several species of large leaved chinchona, one of which was the *C. Tucuyensis* of Karsten. This species is about as useful to quinine manufacturers as *C. succirubra*. Although abundant, it hardly pays to export this kind of bark. On reaching the brow of the eastern slope of the range, the vast expanse of the Cauca valley came in view, diversified with clumps of forest and detached portions of white mist or vapour. Beyond this, on the other side of the valley, the massive range of the central Corderilla was likewise seen. From the eastern slope of the range we were now descending, a lower series of ridges runs eastward or nearly so, and these again subdivide in the same direction. Many of these ridges are covered by a deposit of clay, in some places of great depth, intermixed at times with masses of stone, which, however, is decaying with great rapidity. Thus we proceeded by a gradual descent, which sometimes led along the side, and at other times the summit of a long flat ridge, on the southern side of which ran the river of Cali, which takes its origin from some of the elevated ravines of this Cordillera. On reaching the edge of the plain, and before entering the city of Cali, it was necessary to wade through the river, which runs along the course of a piece of flat land 300 yards in width, that intervenes between the base of the western Cordillera and the city of Cali. The city occupies the crown of a low swelling, the course of which runs from north to south. Viewed from an elevated position the town presents an aspect of tiled roofs, with here and there a few enclosures planted with orange trees and bananas. The streets which run from the plaza northward are a quarter of a mile in length, but most of the buildings are in ruins or deserted, and rapidly falling into decay. There are no indications of commerce, manufactures or work, or activity of any kind. The streets appear almost deserted, and hardly any one is to be seen except a few priests, who, with shovel-like hats, may be observed about the houses of some of the wealthier inhabitants, or standing at frequented shop doors or corners of the streets. On the 9th I left Cali and proceeded up the Cauca valley, at a distance of one to three miles from the slopes of the western Cordillera. The River Cauca on the left was not visible, although I was told it was close at hand. The plains and savannas over which we travelled were thinly covered with leguminous trees and low shrubs. The soil consisted of a deep layer of vegetable mould resting on a light coloured kind of clay. In general, the appearance of the land everywhere indicated great fertility. Shortly after leaving Cali the landscape became soft and marshy, and continued so during the greater part of the day. On travelling a distance of six miles we crossed a sluggish river called Cañaveralejo. Pushing forward we were close to the river of Jamondi, when a most drenching shower came on, the drops of rain falling with a force like hailstones, and compelling the animals to seek shelter wherever they could. Immediately on crossing the river, which was spanned by a doubtful bridge of bamboos, we went through the village of Jamondi, which seems a small place inhabited chiefly by negroes, but as the rain still came down in perfect torrents we rushed for the nearest shelter to be found beyond the village, as the chief profession of the inhabitants is stealing horses. After a while the rain ceased, and we continued our journey over ground which, although firm, was

* This I suppose to be the ancient valley of Lile. *See* Mr. Markham's Translation of "Cieza de Leon," page 101.

was covered with volumes of the recent fallen rain water. After travelling an hour in darkness, we halted at a house near the banks of a large river called Rio Claro.

Early on the morning of the 10th, we waded across Rio Claro (Clear River) with some difficulty, as it was at this time swollen. Traversing a few low undulations of red clay and grassy hollows for some distance, we entered a piece of low swampy forest in which grew many canes of *Gynerium saccharoides*, and, wading with great effort through deep mud and water for at least a quarter of a mile, we reached the Rio de las Cañas (River of the Canes), which was forded without much risk, but there was some trouble in getting the animals up a steep slope of clay, full of deep holes filled with mud and water. On getting clear of this marsh land we approached a series of hills of red clay, which at first seemed an extension of ridges from the western Cordillera, but, on going several leagues further to the south, I saw that this kind of landscape increased, until finally it stretched all the way across from the western to the central Cordillera. After a journey of several miles from Rio de las Cañas, we reached the river of Cauca, which at this place might be as large as the Thames at London Bridge, but the current was very strong, although not to be compared either for swiftness in course or danger in crossing with the River Magdalena, where it unites with the Rio Paez, the point at which I crossed it in 1863. Shortly after crossing the Cauca, we began to traverse numerous hills of red clay until sunset, when a halt was made for the night in the vicinity of a scattered village, inhabited chiefly by negroes, called Buenos Ayres.

June 11th left, and, after travelling quickly over hills of red clay for several hours, we came to a steep descent which led us to the Rio de las Ovejas, which was passed by canoe, but the passage appears rather dangerous. On crossing we encamped for the night on the river bank amidst a great variety of plagues, such as swarms of mosquitoes, *neguas*, ants, and other insects. Three miles below the point at which we crossed, this river falls into the Cauca. Irregular ridges of hills of red clay run along the southern bank of the Ovejas, and extends to the bank of the Cauca, forming above the junction of the two rivers an angular ridge of variable altitude, and this portion of land comprehends the extensive gold washings called Jelima, formerly the property of the nuns of Popayan, but now belonging to Señor Antonio Concha, of Silvia. In the vicinity of the washings above the river bank is the village of Jelima (150 inhabitants), the people of which are mostly negroes, and who support themselves entirely by gold washing, for, although the land of the surrounding district is fertile, they do not plant even bananas, these and other necessaries being brought from Buenos Ayres. The hills of red clay, in the locality of the mine, rise from 400 to 500 feet above the bed of the Rivers Cauca and Ovejas, and have not a sufficient supply of water in summer for surface washings, but there will probably be an abundance during the rains. When wrought on the sluice system, with plenty of water, a washer could make about 10*s.* per day. This refers to hard working skilful European or American washers, for few of the Spanish Americans understand the sluice or box method. All this tract of country, like most of the Cauca valley, is unhealthy, owing perhaps to the bad quality of the water. About two years ago some Californian washers explored these and other mines on the coast, but most, if not all, of the survivors left in a short time on account of the sickly nature of the climate.

On the 12th of June we left the river bank, and at once began a long and tiresome ascent up a ridge, beyond which other slopes had to be ascended, which brought us to a comparatively cold climate, which however was still tropical. These elevations form the southern boundary of the Cauca valley. In the afternoon we travelled up the valley of Popayan, over mound-like hills, low ridges, and green undulations, the whole landscape presenting an appearance singularly interesting and beautiful. The vegetation over this tract was in clumps of shrubs and scattered woodlands, with intervening grassy slopes and hollows. Two large-leaved species of chinchona were observed here, the *C. cordifolia*, and another species with larger coriaceous foliage.

On 13th June I proceeded up the northern bank of the Piendamo river, and came to Silvia at four o'clock in the afternoon. Here I had a short rest after the fatigue of the journey up the Cauca valley. However, on the 15th I began to search, and got a few seeds from three young trees which had been planted in a piece of ground belonging to a man who had formerly wrought as a *cascarillero* at Pitayo. Although growing close to a house with a hedge all round, the bark had been several times sliced off the stems. There was only a small quantity of seeds obtained from these trees, but one had a number of bunches in a more or less advanced state of maturity. In case that these should burst during my absence, I made a number of very thin gauze bags, and put one over each panicle, of which in all there were 36. I observed afterwards that the bags shaded the fruit, and if possible should not be put on until the capsules or pods are beginning to burst.

On the 22nd of June, I despatched two packets of seed, one of which was of the small-leaved variety, *viâ* Bogota.

June 30th, I left Silvia with a guide, and proceeded to the Piñon, thence descended to the village of Pitayo, and followed a ravine which from the village takes a north-east direction, and contains all the streams and rivulets that flow down the slopes of Pitayo. On going down the border of the ravine for two miles, we crossed by a wooden bridge to the opposite side, but the way still led, although at some distance, along the bank of the ravine. The mountains to the eastward, consisting chiefly of decaying slate rock, but ornamented with thousands of masses of other rocks and limestone, rise up, fronted with low precipices, and varying lofty slopes, with rounded eminences, and hills, and steeps,

to the *paramo* of Moras. This lofty and extensive *paramo* runs northward from the Guanacas, forming, with the vast grassy mountains and volcanic elevations grouped around the snowy cones of the volcano Huihla, an important and grandly picturesque part of the central Cordillera in this region. From Pitayo, a road, or rather a kind of footpath, leads over the *paramo* of Moras, and crossing the river Paez near Inza, unites there with the road of the Guanacas.

In the afternoon we reached the village of Hambalo, which is distant 10 or 12 miles from Pitayo. This village consists of 25 or 30 houses, and an odd-looking church, built of mud and sticks, with its eaves nearly touching the ground. It is situated on very steep sloping descents on the north-eastern bank of the River Hambalo, which takes its origin from the rivulets of Pitayo. Unfortunately my visit was at an inconvenient time, for a feast (*fiesta*) which should have been past was now being held, and, in consequence, the place was full of drunken Indians and riotous people. I saw several small plants of chinchona here, and also some dried bark, which although good, had been taken from very young trees. The bark was the same as some found near Pitayo.

On the following day, 1st July, I was glad to leave the place, and went away before hardly any one was up, and did not stop until I got to Pitayo. Here I proposed to remain for the day, especially as an Indian, whose name was Chowendo, had a place some distance above the village, where some quinine trees were formerly growing, and if these still remained, it was thought some might be found bearing seed. Accordingly, about midday, I began the ascent of the slope, which in some places was undulating, in others steep, but the surface deposit was nearly pure vegetable mould, but very mealy and dry. The subsoil was a yellow porous clay, in general loose and friable. All this slope, according to the accounts of the natives, was formerly covered with forest which in great part consisted of quinine trees. Now it is mostly covered with shrubs, consisting of salvias, pipers (*Artanthe*), fuchsias, solanums, and composites. On reaching the house of the Indian, I found he was absent, and only several small children were present, who at first ran away, but on being recalled, stood and gazed in perfect silence, and did not seem to understand anything. Finally, an old woman came, who said I might look at the trees, some of which were growing in a field of wheat beside the house. From several of the trees I collected a number of seeds, in excellent condition. The kind I found here was Mr. Howard's Piñon variety, of which bark from trees growing at this spot yielded him 11·34 per cent. of alkaloids. Most of the old shoots were of natural growth, but on this visit I observed that several young trees had been planted. The house of the Indian, surrounded with straggling forest and a few quinine trees, occupied the crown of a low hill or eminence which, towards the east, was connected or united to another ridge, but to the south-west sloped steeply down to a small rivulet, and northward with more gentle declivities to the valley of Pitayo. At this time a number of the young trees were loaded with blossoms, besides some panicles of fruit which was still green. After searching all the seed-bearing trees, I left with the expectation of getting, at my next visit, several little bags of seed of this valuable kind. Returning to the village of Pitayo, I remained there for the night, but could not sleep for the cold, which brought on ague chill; therefore I went in the morning to Silvia. On my return, I at once began to dry the seeds, and separated the best and ripest to be dried apart, and these I also proposed to send off by the first opportunity. The remaining capsules, some of which were rather green, I carried to an unfrequented place, partially covered with shrubs and thickets on the banks of the Piendamo river, and spread the fruit out on a piece of cotton cloth to the rays of the sun. Afterwards, when I went away for a short time, some one stole both the seeds and cotton cloth, although the object of the robbery was undoubtedly the latter article. Subsequently, I consoled myself with the fact that I had previously selected the best and ripest of the seed. In about a couple of days, this seed was dry, and its appearance was very satisfactory. I made no trial to see whether these would germinate, because I had as yet no proper place secure from curious people to carry on experiments.

On the 2nd of August I left Silvia and went to Popayan, whence the seeds were despatched by post to Buenaventura, to go on by the mail steamers to Europe. Returning again to Silvia, I spent several days in searching and travelling to the westward of the Piñon, in the direction of the farms called Chiman and Ambalo, both of which, but especially the latter, at one time furnished a large amount of a yellow kind of bark of very fine quality. Throughout all this district I did not find a single seed.

On seeing that there was no hope of procuring seed from so small plants, I returned to Pitayo on the 18th of August. Here I re-collected a few seeds from one or two trees of the Indian Chowendo, although, since my last visit, the greater part of both blossoms and fruit, as well as many of the leaves, had been broken, injured, or completely blown off by the wind. Several houses in Pitayo were partially stripped of thatch, and nearly every house in Silvia suffered more or less from the violence of the wind during the months of July and August. I searched for a place to stay in, and after a little inquiry was lodged in the "despacho," a small apartment of the house occupied by Señor Ventura, the Corregidor of Pitayo. The Corregidor, who was almost always at home, was a little grey-headed man, slightly made, dressed during week days in a pair of woollen trousers, much torn and tattered, and an old thin poncho, while an article like a nightcap, but of curtailed dimensions, was drawn tightly over the crown of his head. He was drunk on the day of my arrival, and I was told that this occurred "for times," which were prolonged for a period of eight days. Sometimes, however, he allowed the greater part of the day

to

to be gone before becoming intoxicated. Except when totally insensible from spirits, he was a very frank, good natured man. There were several Indian lads attached to the establishment for going messages, and doing other duties, and I was allowed one of them when I went up the slopes. Señor Ventura appeared to pass the greater part of both day and night (except the half hour or so when he went out to get drunk) in a little house used for cooking, a few yards from the "despacho," the roof of which was only partially visible for smoke, and from within a sound of conversation and feasting was heard until very late at night, and again very early in the morning. The habit of the Paez Indians is to eat twice a day, late at night and before dawn, and the Corregidor, although not a native of Pitayo, had resided there for some time, and imbibed the customs of the Indians, even to the chewing of coca. All these *Tierra Adentro* Indians, as well as those of Guambia, Popayan, and south as far as the Patia valley, likewise make use of coca. This product is the leaf of *Erythroxylon Coca*, a shrub similar to the tea plant, the leaves of which are picked green and scorched in a flat earthen pan, or, sometimes, in an oven, then spread out in the shade until perfectly dry. The Indians will stuff about a loose handful of the leaves into their mouths at once, with a little caustic or slack lime, and after eating in the morning, they will do a fair day's work with no other support than coca. The Indians, who chew this sometimes, appear to become a little corpulent, although by no means excessively so; the skin has an oily appearance, or as if bedewed with perspiration, and the features have a languid expression of dreamy complacency. The eye often becomes glassy and watery, and although its functions may not be impaired, still it does not present the natural clearness and vigour generally observable when that organ is in a healthy state. I noticed that their hands, when doing anything, had always a tremulous motion, a proof that whatever sustenance may be obtained from the use of the leaf, it operates in a powerful manner on the nervous system. Its action probably combines, to a certain extent, the properties of Indian hemp and opium. I have not been able to determine sufficiently whether it shortens the natural period of life, but I have seen aged Indians who used coca. It is curious that the Indians of *Tierra Adentro*, Popayan, and Patia use coca, while it is unknown in the Ecuador, but on going farther south we again meet with it among the Indians of Peru and Bolivia. There are two varieties cultivated in New Granada, one which in commerce commonly appears as broad leafed and of rather a pale green colour comes from the Cauca Valley, the other, which is narrow leafed and of a dark green hue, and which is also the most prized, is brought from the eastward of the Guanacas, where it is cultivated at or near the villages of Inza, Pedregal, La Topa, and Timaná.

After several days of unsuccessful search, I crossed the Rio Salado on the 22nd, and ascended the slopes to the eastward, which terminate in the *paramo* of Moras. From the Rio Salado a long ascent led up the slope, near the southern bank of the ravine of San José, to the clearing of an Indian who had a few quinine trees, whose house was situated below the brow of the *paramo*. At this place I found three young trees, but not, as I thought, of the finest variety, which were destitute of seeds, although there was a few racemes of flowers.

On the 25th of August I returned to Silvia and dried the collection. I proceeded on the 6th of September to Popayan, and despatched the seeds by post. Returning to Silvia on the 8th, I made several short excursions in the neighbourhood, and, on 24th September, went to visit the upper and more retired districts of the farm of Ambalo, which comprehends a portion of the north-western slopes and *paramo* of the Guanacas. The object in view was to examine some ancient Indian hieroglyphics cut out on rocks in the *paramo* region, and also to ascertain if the quinine trees grew to the upper limit of the forest. Accompanied by a lad, I left Silvia, crossed the Piendamo, and went down its southern bank to the farm house of Ambalo, distant from Silvia about two miles. The proprietor, Señor Rebolledo, had previously offered to accompany me, and show me the inscriptions which are not known to many people in the district. Now, however, he wanted to put the matter off till another day by making many excuses, and finally declined to give me an Indian as a guide, expecting, I suppose, that I would not proceed any distance. In addition to this I must state that the instructions given as to the road proved incorrect, at least in one important particular. The lad had formerly assisted in collecting quinine bark in this locality, but he only knew the road to the base of the lofty forest covered slopes, where it dwindles into a number of footpaths. Nevertheless, I went on hoping at least to examine the Chinchona plants in the upper region.

Leaving the farmhouse, we went to the south-east, up an undulating valley a mile in width, with the high ridges on each side. The interior of the valley was diversified with low stony eminences, and undulations in part covered with shrubs. Several artificial looking mounds were pointed out, reported to have been formed by Indians long ago. One of these had been dug into by a "huacero," a class of men in this region who devote their time to searching for gold or silver ornaments in the ancient Indian places of burial. As we proceeded through a vegetation of tall shrubs, chiefly *Salvias*, up the centre of the valley, the mountains on each side rose to a great height, the upper portion of the slopes, more or less wooded, while the summits appeared as *paramos*. After travelling several miles, the valley at length terminated at the base of a semicircular towering mass of mountains, with slopes so steep that it appeared impossible to ascend at any place. A path, I was told, led up these mountains, at a certain point, to the *paramo* by which the Indians proceed to join the road that leads over the Guanacas. On account of the numerous footpaths formerly made by the *cascarilleros*, and now partly used by the Indians, to go to little

patches of maize and other crops, we lost our way, and had to return twice to the beaten road that leads up the valley.

As it was now nearly midday, there was only just time to make another attempt. At one place a long narrow ridge terminated steeply near the margin of the valley, on the slope of which we had previously seen some yellow earth, an appearance that often indicates a road or footpath. I was previously informed that we must leave our horses at the foot of the ridge, but the lad thought the Indians might steal them, or, at least, the harness, during our absence, therefore it was resolved that they should go along with us. Travelling on foot up the steep ascent, we, in a short time reached the crown of the ridge, and walked along its summit up a gradual incline, although the land on each side sloped down rapidly to the ravines below. As we approached the upper limit of forest, where the trees became rather low and spreading, the quinine plants *at once disappeared.* Passing forward, we in a short time reached the open *paramo* region, diversified with low cliffs, grassy hills, and hollows, in which grew a hard foliaged vegetation of myrtle-leaved shrubs, *Composites,* and *Thibaudias.* This landscape, with its aspect of wild upland tracts, with clumps of shrubs and alpine herbage, was very beautiful. Now I was told, on getting up on the *paramo,* to keep well to the right, and, while doing so, was in the act of passing the hieroglyphics when the lad, happening to look to the left, saw the circles and other inscriptions, distant about 100 yards. The horses were immediately led into a hollow at hand, beside a clump of shrubs, and fastened with ropes to feed, while I proceeded to take the hieroglyphics as accurately as possible. These were cut out on the smooth or flat places of a number of volcanic rocks jutting from the lower part of a grassy hill slope. In some cases the rock was not of the hardest quality, although sufficient to withstand the effects of the elements for a great length of time. When first executed, there must have been several hundreds, but a great number were just distinguishable, others were distinct, while some, cut at a later period, were very clear and easily discerned. Even after the lapse of so much time, the cutting of a few of the circles was still found to be nearly two inches deep. The edges of these figures were much rounded and levelled by exposure to the tempests of the *paramo.* In a few minutes a cold pattering rain came on, which only momentarily ceased, therefore all haste was made to finish the work. Those who knew this part assured me the cold was such that I would not be able to stand more than a few minutes at the inscriptions, and I must own that the place is cold. In half an hour I had looked over the rocks, and sketched the most distinct and entire of the figures. There was no time for further search, as a drenching shower of rain was coming on, so we descended the slopes rapidly, and rested in the valley below.

On another occasion I examined the upper limit of the quinine plants, and found the locality to have an altitude of 9,700 feet. The hieroglyphics were computed to be 11,400 feet above the level of the sea. At this same spot there is also the remains of an ancient road, leading over the *paramo,* 34 feet wide, now overgrown with grass and shrubs, but the course is still perfectly evident, and pieces of soft volcanic rock have apparently been removed for its formation. The soil is full of fragments of pottery.

The appearance and aspect of the *paramo* region at this place does not give the least indication of having been formerly inhabited, and even the vegetation is rare and singular in character, resembling that seen in adjacent localities of the same elevation. Shortly before one reaches the *paramo* there is a spring of water, where I found wood ashes and broken pottery at a depth of nearly two feet below the surface. Annexed are sketches of the most distinct of the inscriptions.

On arrival at Silvia I was kindly accommodated for some time in a small room by Señor Antonia Ozaeta, an influential gentleman, who often obliged and assisted me. I could not dry the seeds well at this place, therefore I rented a more commodious house in the north-west corner of the plaza. Although my new quarters in one or two places was in a partial state of decay, I soon converted it into a serviceable dwelling. Behind the house, which fronted the plaza, was an open space or court, then beyond three little sheds, all of which were connected and enclosed by a strong mud wall. The place seemed to have been planned for defence, and indeed had already gone through one ordeal during the late revolution, when an engagement took place between Pitayo Indians, commanded by white officers, and a party of Government troops. The village of Silvia or Guambia occupies a narrow piece of sloping land on the north bank of the Piendamo river, at an elevation of 7,300 feet. Before the bark trade commenced there were only a few houses. The population of the village at present may be about 1,000. It is composed of two parallel streets of thatched houses, a number of which have been empty since the civil war, when the place was occupied by Paez Indians. The Guambiana tribe, which inhabits this region as far as the Piñon, are generally peaceful and industrious. In stature and build they resemble Inca Indians. Both males and females cut their hair quite short. Inca Indians make a great lamentation and crying for the dead, but the Guambians are different. When any one dies, the first inquiry will be if there is to be coca, and something to drink. If there is plenty of these things, many Indians will come, which is not to be wondered at. The deceased is rolled up in his *poncho,* is then tied on a roughly made ladder of sticks, and carried to the place of interment. Previous to being interred he is stripped naked, or nearly so, because "they cannot afford to lose the clothing." There is no crying or appearance of sorrow, but rather cheerfulness, their belief being that he is now better off. When engaged in their various duties they exhibit much forbearance, and are kind to each other.

The great earthquake which happened in the Ecuador on the 16th of August did not extend

extend to New Granada at the time, although there was some fear that it would. Near the end of September, a Dominican friar, with rabid countenance and an apparent sense of exclusive excellence, came to Silvia, to collect money for some mission, and to make "rogativas" (beseechings that there might be no earthquake in these parts. Nevertheless, there was a rather severe shock felt throughout the greater part of the Cauca valley on the 18th of October. The Dominican who visited Silvia would not accept bed or bench of any description, but slept all night in his clothes on the floor, whence it may be certainly assumed that he was literally swarming with vermin. By many this kind of chastisement and suffering was considered a positive act of sanctity and religion. On several days at the end of September there were heavy showers, but by the 6th of October the rainy season was announced in real earnest. With the advent of the rains came three distinct plagues, neguas, fleas, and ague. The negua (*Pulex penetrans*) is an insect about the size of the point of a needle, in fact hardly visible to the naked eye. This insect, which appears to be chiefly confined to tropical America, is often met with in sand-covered districts, and where hogs are abundant and allowed to run about. The "negua" generally digs deeply into the heel or sole of the foot, or under the toe nail. In about a couple of days, or less, it at once begins to multiply, forming a round ball, about the size of a common glass bead filled with watery matter and numerous offspring. The negua, however, ought to be extracted the moment it is felt. Even although this is done, an almost unbearable itching follows its removal, often extending to the whole foot, and the part from which the insect has been extracted will sometimes become an ulcer, and may give trouble and pain for perhaps a month. In order to have a fair idea of the actual suffering this insect causes, it seems to me it would be necessary for one to have his foot firmly fixed in a vice, and the point of a nail slowly but steadily pushed into the sole, for about a quarter of an inch. So much were these insects and fleas felt by the army of *Conquistadores*, that came down from Quito with Belalcazar, that they were compelled to leave the city of Popayan, and form an encampment on the bank of the River Cauca.*

Conjointly with the plague of neguas came that of fleas, so numerous that when I went every morning to bathe in the Piendamo river, I had frequently to stand on a stone and shake each article of clothing over the stream, to free it so far from the vast swarms of fleas, with which it was literally blackened over. Although clean clothing was put on, it would be thickly populated in four hours afterwards. When writing my journal, I had to leave off every half hour and sweep the floor around where I sat. The natives, although accustomed to this plague, suffered also; they became thin and pale, consequent on the torment from these insects day and night. Indeed I had some thoughts of removing from Silvia to a warm part of the Cauca valley, where I might have been free from fleas and neguas. But if I had done so, I should probably have lost the best crop of seeds, therefore there was no other remedy but to have patience until the insects would be gone. In two weeks afterwards, both fleas and neguas generally disappeared. Their presence, and subsequently the extraordinary rapidity with which they multiplied, was attributed to the peculiar climatic circumstances and atmospheric conditions of the Popayan valley. At the time of fleas and neguas, ague also became very prevalent. The feeling produced was as if one had been beaten severely over the whole body with a rod. Many of the natives seemed to suffer severely from this kind of ague, which appeared at intervals during the whole of the rainy season. In the valleys of Cauca, Popayan, and the Patia, the ague† is of a low typhoid character, often accompanied with great distress and cerebral derangement, and kills many people. However, even in the case of these low fevers, it appears, if the sufferer, after the exhibition of an emetic and purgative, is well dosed with quinine and wine, recovery is almost always certain, if there has been no delay in administering these remedies. The fever region in New Granada ascends from the level of the sea to an elevation of 8,000 feet or more, for indeed, the country is pestiferous everywhere.

On the 24th of December, there was a great feast held by several thousands of Indians, for the purpose of drinking and dancing. The affair, which was kept in the plaza of Silvia, lasted for eight days, and considering all things, was very orderly. The Indians, coming from the different ravines to the westward of the Guanacas, were chiefly of the tribe Guambiana, but a few Paezes from *Tierra Adentro*, armed with lances, also made their appearance and did some depredations. The Alcade of Silvia had instructions to take the lances from them when they came out armed, but it appeared that he was afraid to interfere much with them. In this assemblage of Indians I observed the remains of different tribes and nations. There were Indians from various localities of the eastern side of the Popayan valley, but especially from the villages of Ausenda, Totoro, Polindara, Puracé, Paniquita, La Atico, and Tunia. The greater number had their faces partially painted, being streaked over with black and red paint. They go together in groups of 25 or 30 individuals, accompanied by one who plays a simple flute, and another who beats a small drum. Then when the music begins, they dance in twos, face to face, something after the way of a Scotch reel. Subsequently they form in a circle and keep going round for a few minutes, making a kind of hop to the music at every alternate step. During the whole of the performance a continual yelling is kept up which is perfectly deafening.

Females do not join in the dance, but a certain number, loaded with bags of provisions, follow each party, and remain all the time of the feast. I do not think that the Paez Indians

* Padre Castellanos. † Tabardillo.

Indians unite in these festivities; they are rather to be seen at certain places, three or four together, with their faces very near each other, talking in a low tone of voice, and plotting and devising some scheme of plunder.

On 5th January 1869, as the weather had cleared, I left Silvia and travelled for some miles up the left bank of the Piendamo river, then crossed over by a bridge to the opposite side. On going three or four miles farther, I again crossed the river by a wooden bridge to the left bank. At this place high mountains on each side with very steep fronts, or lofty precipices, approach near to the banks of the river. A species of alum, which lower down is abundant, is not frequent here, but there is still plenty of *Melastomæ, Peperomias,* and *Composites.* As rarities I saw here a good double flowering *Fuchsia,* a plant resembling both the common raspberry and bramble, with an erect stem, several *Salvias,* and a dwarf small-leaved species of *Gunnera.* As the day advanced, we passed a scattered village, which at one time must have been extensive, called high Piendamo, the inhabitants of which are all Guambiana Indians, and are peaceful and industrious. The chief products cultivated are potatoes, beans, and garlic. Passing gradually higher along the river bank, the temperature was still colder, and finally we passed the last house, where I was told it was necessary to remain for the night. The path became narrow and partially closed by tall shrubs, which grew thickly around. At this place, the Piendamo is a mere stream of "two mills of water." The elevation was 9,600 feet. After resting, we returned to the house of the Indian to remain for the night. From the Indian, whose name was Tombé, I learned that no quinine trees grew in this locality, and consequently no bark was collected. The Indian thought it was too cold, but I did not attribute the absence of quinine trees to this cause, as the elevation was about the same as the base of the Piñon of Pitayo. The mountains here on each side of the Piendamo rise up very steep, almost like a wall, to a height of 1,200 feet above the bottom of the ravine. Therefore, although the wind from the grass covered *paramos* to the eastward blows down the ravine, it would be well sheltered from the north and south winds. The westerly breezes coming from the Cauca valley are always gratefully mild and agreeable. This locality, walled along on each side by steep masses of galvanic rock, would not receive the full benefit of the sun's rays from sunrise to sunset. Perhaps, owing to these circumstances, the climate of the narrow strip of land on each side of the Piendamo was of a peculiar character, more moist and less liable to suffer from drying winds or scorching sunshine than most parts of the adjacent country. On this account, maize and potatoes are planted and harvested all the year round. There is scarcely any marsh or wet ground, and the soil consists of vegetable matter, intermixed with *débris* and small particles of volcanic rock, which have fallen or been washed down by rains and streamlets from the fronts of the lofty precipices on each side. Nevertheless, I considered it rather singular that there should be no quinine trees, at least on the brows of the adjacent mountains, seeing that the tree was formerly abundant to the south-west of the Piñon, which will only be a few miles from the Piendamo ravine. Apart from the circumstance of the bark plant being found in situations with a dry subsoil, in general free from any extent of marsh land, I further observed that this quinine tree of Pitayo grew chiefly in localities with a mild aspect of undulations, inequalities, mound-like hills, and wavy steeps, with here and there cliffs or masses of volcanic rock, but in tracts with unconfined views, where one could see a distance of two or three miles away, and where the heat of the sun, with the air, wind, drifting rains, and light sunshine showers from the *paramos,* could move and circulate everywhere around.

On the 13th of January I left Silvia, and went on to Pitayo to renew the search for seeds, and also, as circumstances and occasion might offer, to ascertain the elevation of certain places. January 15th I went up to take the elevation of a hill called Watsca (necklace) and make an examination of the slopes and summit. Although this hill, which in form resembles a sugar loaf, is generally covered with a vegetation of trees and shrubs, yet the existence of a former crater was clearly discernible on the summit. On the slopes were seen quantities of melted stones, similar to pumice stone, but heavier, all of the same kind, confirming the existence of volcanic action at a comparatively recent period. Near the base of the hill slate rock very much decomposed was seen cropping out in several places. It would thus appear that the volcanic agencies in this quarter pushed or forced a passage through the slate rock, although the force exerted in this way was apparently more in the form of an explosion, such, perhaps, as would be occasioned by gunpowder. Greater or less portions of slate rock are seen everywhere around Pitayo and other places, but the Piñon itself is a vast mass of volcanic origin. The elevation of the Watsca was calculated at 9,400 feet. Much difficulty was experienced in executing the observation as the wind was blowing violently, so that a spark might have set the dried grass on fire, which, perhaps, would have spread to the crops of the Indians that grew around on the lower slopes. A hole was therefore dug in the ground, some dry branches were broken and kindled, and a tin pot full of water was then boiled in order to obtain the altitude. The ascent and descent of this hill was hard work, and occupied the greater part of the day; there was no footpath, and the close nettled shrubs were hard and strong, and not easily brushed aside. The surface of the undulating land at the base of the Watsca is in many places strewn with volcanic stones, numbers of which would avervge from one to three pounds in weight. Beneath the stones there is a deposit of earth, which on examination was found to be full of fragments of pottery to a depth of two feet below the surface. This locality was probably thickly peopled at the time of a volcanic disturbance, and, considering

sidering the great quantity of stones and the force with which these would be showered rom the summit of the Watsca, it may be inferred that the inhabitants were literally pelted to death.

January 16th I went up to the house of the Indian Chowendo to look for seeds, but found very few. On the 18th I proceeded to examine and take the altitude of a height near the Piñon called Cal. The slopes of the hill are very steep, especially that part which descends towards Pitayo. It was on this side I climbed up, taking hold of shrubs and stumps of trees to facilitate my ascent. On reaching the summit I walked about for a few minutes among the shrubs, but could not discover so decided proofs of a former crater as was observed on the top of the Watsca. Nevertheless, there were many melted stones to be seen on the slopes. The elevation of Cal was determined to be not less than 9,900 feet above the level of the sea. No quinine plants were found on the summit, yet some must have been growing at hand not long ago, as a number which had been barked were found on the hill top.

On the 19th I went to the house of an Indian situated on the bank of the ravine of San José to the eastward of Pitayo, where there were four young trees, but no seeds worth collecting could be found, as the wind had previously blown off the greater part of the unripe fruit. One of the trees here was of the rare narrow-leaved kind, but had only one or two green fruits. Returning to Pitayo, I was told, late in the evening, of some trees at the house of an Indian to the north-east of Pitayo. I had already arranged to go on to Silvia on the following day, but, as the trees were said to be a good size, I entertained hopes that I might find some seeds. On being shown the locality from the plaza, I thought that, by going away very early in the morning, I might still be able to proceed to Silvia on my return. Accordingly, preparations were made to accomplish the first part of the journey as early as possible. Soon after midnight I took with me the Indian lad, and, as there was good moonlight, we proceeded the shortest way by an intricate but well-beaten track, which a short distance below Pitayo began to wind down the bank of the Salado ravine among stones and massive pieces of rock. On descending to the bottom of the ravine, the terminal point of a ridge had to be crossed, which was broken and difficult to traverse, with precipices in several places. Passing this rugged and unequal surface, we finally got clear of the ravine, and the ascent of a long steep slope was commenced, which at this place forms the western declivities of the *paramo* of Moras. After a long and tiresome ascent we came to the Indian hut, which stood near the brow of an eminence, a little distance below the point where the spreading forest runs up ravines to the *pajonales*. No one was seen about, but it was very probable we were observed, so the lad was desired to call loud to the inmates, when, in a short time, several Indians came out, to whom the lad spoke in the Paez language. My request to see the quinine trees was at once complied with. The largest had been already completely rooted up, and no hope could be entertained of collecting seeds from the few young plants that remained. The Indians were kind, and invited me to come on another occasion, but they saw I was disappointed, and said I would not return again, and indeed I did not go back. Descending the slope, I was able to get to Silvia in the afternoon. This was one of the hardest day's work I have had at any time on the Andes. On the 27th of January a storm of rain, intermixed with hail, fell at Silvia, but the hailstones melted almost immediately.

February 3rd I went to Popayan, hoping to receive information respecting the seeds, and to get some clothing. On the 5th I called at the house of my friend, M. Leon Douay, of Paris, a quinine bark merchant, whose transactions at one time were extensive in Pitayo bark. Here I met with and was introduced to M. Reiss, a German geologist, who, along with another German gentleman, M. Stüfel, likewise a geologist and traveller, was proceeding from Bogota up the course of the central Andes, as far as Guayaquil, in order to inspect the volcanoes and other objects of interest in that region. My forest coat, which was torn in 14 different places, seemed to arrest the attention of M. Reiss, who looked at it through his glasses as if he had just discovered a peculiar and unaccountable movement of the planetary system, somewhere about the "Milky Way." Returning from Popayan on the 6th, I got to Silvia on the same day. Shortly afterwards M. Reiss, accompanied by Mr. Robert White, a civil engineer, and M. Leon Douay, came to Silvia, to examine the Piñon and some sulphureous springs on the *paramo*.

On the arrival of M. Reiss, the sublimation of gaseous bodies, origin of simple substances and creation of atoms was at once mathematically accounted for. M. Reiss was, indeed, like a volcano, the principal crater of which, on being covered up, began to burst forth everywhere around. Although disposing of preliminaries beyond the region of orbs, his chief work related to geology. He broke off pieces of rock of every shade of colour, wherever found. In this way he had portions of all kinds of rock, both of stratified and volcanic origin. It appears the aim was to discover what these rocks were composed of, a subject quite in consonance with the intellectual tendencies of M. Reiss. His specimens of stone, neatly reduced with a hammer, were about six inches long and four inches broad. They were subsequently labelled and despatched without delay to Germany. The methods resorted to by M. Reiss in ascertaining elevations were by aneroid, boiling water, and calculation by temperature. It is needless to say that the latter system is hardly worth anything at all. The aneroid is, of course, good, but many cannot afford to employ a person solely to carry an instrument. My own calculations by boiling water were almost the same as those of M. Reiss at high altitudes, but lower down, near the plains, there was a difference of nearly 300 feet.

A few days after the departure of M. Reiss, who went to Popayan, M. Stüfel came, with the object of ascending the great volcano, Huihla, in *Tierra Andentro*, a work which he had attempted from the Magdalena valley, but failed. On this occasion he was also unsuccessful. Taking with him a party of 13 men, he crossed the *paramo* a few leagues north of Pitayo, and went up the slopes of the volcano for some distance, when a shower of snow (*papa cara*) compelled the whole band to return. The only thing he saw was that the volcano is active, a circumstance which was known before. However, he brought back several botanical specimens of undescribed plants, and some ancient Indian pottery. According to the statement of M. Stüfel, this little trip, which occupied a fortnight, cost him nearly 100 *l.* On his return, he appeared dissatisfied, not that he was naturally irritable, but he had had an attack of fever in the Magdalena valley, and it had left, as it does to many, an impression upon him. He proposed to go with me to a certain place, to see the result of the Piendamo river against a volcanic cliff, at a time when the bed of the stream was much higher than at present. The journey had to be made on foot, which he did not like, and before we returned I had some mild reproof. On going past the corner of a house, M. Stüfel stopped to look at some stones, one of which he selected. With a pocket hammer, which I remarked might be too small, he struck the end of the stone several hard blows, when a good-sized piece quite accidentally broke off. M. Stüfel first glanced at his hammer, then looked round to me, and said, with emotion, "Ah, that is a *German* hammer." After a pause, he continued, "Other countries will speak plenty, but "the Germans, the Germans, when they want, if they wish, they can do anything." I assented, and admitted the transcendent character of the German intellect. Afterwards I had two visits from M. Stüfel before he went away. The "Diario Official" of Bogota (25th July 1858) gives an "Informe" of "the Señores Reiss and Stüfel, the first of "Manheim (dukedom of Baden), and the second of Dresden (kingdom of Saxony), who "were on a scientific tour through New Granada." Both M. Reiss and M. Stüfel visited the volcano of Puracé, the principal crater of which they reported to have become inactive, or, as the Spaniards termed it, "apagado." However, shortly after they left Popayan, the whole of the crater subsided, and there was a vast eruption of ashes, which frightened the population of the adjacent villages as far as Popayan. It was stated that the expenses of M. Reiss and M. Stüfel were defrayed in great part by the Prussian Government. Their joint expenses must have amounted to at least 2,400 *l.* per annum. I am of opinion that their researches will prove instructive and important.

Along with others, I have myself profited by coming in contact with experienced Frenchmen and Germans, because in their ways and methods of working they take hold of little simplicities, which people at home are apt to overlook or consider unimportant. Nevertheless, after all that has been said, they cannot, as a rule, reduce their ideas to practice so well as we can. Towards the end of February, I examined the quinine forests to the river, to the southward of the River Piendamo, and was able to satisfy myself that only the yellow bark is collected to the southward. My observations coincided with the statements of an experienced bark merchant, who assured me that the fine kinds of Piñon bark were not found on the south side of the river. While travelling on the steep forest-covered slopes, it was observed that the method of the bark collectors here was to pull up a number of young plants, which they carried away, and barked by the side of a footpath.

On one of these excursions, I went to see a large stone or boulder of volcanic rock on the farm of Chiman, on which some ancient Indian hieroglyphics have been cut. The stone in question had a comparatively smooth surface, and was about 12 feet in length and eight feet in breadth.

The most distinct of the figures were copied. In forming these, some kind of metal may have been used, as the stone is very hard.

For several years, while travelling on the Andes, I have searched extensively, and made many investigations regarding the antiquity of man. This work I have prosecuted, both on the plains and in the forests on the mountains. The chief evidences to be found of primitive man are hieroglyphics, pieces of wood, charcoal, stone implements, and pottery, which are met with in the soil, at a depth of six feet, or at most eight feet below the surface. Everything else found deeper has been purposely deposited by making excavations, or is the result of landslips or other accidents. In regions at an elevation of 9,600 feet, where a numerous population must have lived for a vast period of time, I have seen great quantities of pottery, to a depth of four feet from the surface. About the same kind of pottery is found from the beginning up to the present time, forming as yet but one continued period. There were no inhabitants before the yellow gravel deposit, but they came *at once* soon afterwards, and in great numbers. Their food appears to have been mostly vegetable, chiefly Indian corn, which, on account of the fertility of the soil, owing to the abundance of volcanic ammonia, must have grown with great luxuriance. The Indians believed in the existence of the Supreme Being according to their amount of intelligence. They had various religious rites and ceremonies, to which the priests, with their continual pretensions to goodness, added many impositions, frauds, and absurdities. Apart from the information furnished by the early Spanish writers and Jesuit missionaries, I have been able to understand that, even in the most retired districts, the Indians believed in a state after death, when they expected to enjoy an endless life, with perpetual eating and drinking, but when anyone died this had to be anticipated by the relatives giving a good present of the best of everything to the priests, or *Cushipatas*, "to send the spirit away to the place of plenty." There is not the slightest appearance or proof that the human races have at one time been related to the inferior animals, nor is there any likelihood of

such

such a thing taking place. The aborigines of America, from Tierra del Fuego to Melville Island, appear to have originated from the same stock. I am disposed to think that Indians at one time roamed over northern Asia and Europe.

At the time of my arrival in the quinine forests, I began to take special note of the weather. From the middle of June 1868 there was drizzly light rain in the afternoon, mostly sufficient to wet a silk handkerchief, but not a piece of calico or cotton cloth. This kind of rain was invariably accompanied by boisterous winds. Sometimes these winds would continue all night and after daybreak until eight o'clock, when it would become fine, with sunshine. About three or four o'clock in the afternoon the *paramo* showers would again come on. And so the weather continued much in this way until near the end of July, when the winds, mostly from the south-east, east, or north-east, became stronger, and the sun's rays were more violent. By the 12th of August the stormy season appeared to have reached its height, the days were mostly dark, with a diminished temperature, and the tempestous winds waved and bent down the trees and bushes of the prominent slopes and hills with great violence. After the 14th the weather began to improve, the furious gusts of wind and drifting small rain were each day more moderate, until near the end of August, when the weather, although with often high winds, became clear, dry, and warm.

In September, on the 25th, the days were fine, with gentle pleasant breezes. During the greater part of this month also the *paramo* and forest-covered slopes were mostly clear everywhere around. Up to the 25th, only one or two real showers of rain had fallen, but on several days at the termination of the month it rained a good deal. October was ushered in by tempests of rain, which came down in torrents, heavier, I thought, than the rains I saw at the setting-in of a monsoon on the hills in India in 1861. As the month advanced the showers were of greater duration, pouring down for 30 hours with but slight intermission. On the 12th there was a fall of large hailstones, which melted in a short time. I was told that hail fell occasionally in the months of October and November. A native informed me that on one occasion, on crossing the Piñon, a hailstorm happened, which covered up the path so much that he was afraid he would lose the way. This statement, it appeared to me was rather exaggerated, for, supposing there had been a fall of two or three feet of hail, the wall of forest trees on each side was quite sufficient to define the path. Probably the fall to which this person referred was only about an inch or so in depth, just enough to whiten the ground; and instances like this one may see occasionally in different places on the *paramos* of the Andes. Hailstones, when falling any considerable distance below the line of perpetual snow, are thawed in an hour or two, or, at most, disappear by the following morning. I have been told that showers of hailstones sometimes descend to the tropical regions which form the lower slopes of lofty mountains or elevated *paramos*, destroying plantations of sugar-cane and coffee. I have never, myself, observed these take place, and I am of opinion that hail is rarely seen in tropical districts.

In the beginning of November the weather became better, and cleared up near the end of the month. During December there were some copious falls of rain, although it was thought the quantity was less than usual. With the entering in of the new year, January 1869, the "veranilla," or little summer, commenced. The "veranilla" is expected in most places in the Ecuador or New Granada, although the period varies in different localities. In the Ecuador it frequently happens in January, extending sometimes to the middle of February. As for New Granada, particularly the States of Cauca and Panama, no dry or summer weather need be relied on or looked for at any time during the whole year. The cold climate of the Ecuador is in general healthy, even where there is much rain with damp and fogs, whereas on the elevated mountain slopes bordering on the Cauca valley, the inhabitants are often trembling with ague at an elevation of 7,500 above the level of the sea. The "veranilla," which is a pleasant period of cloudy days, with some sunshine, lasted till near the end of February. Both March and April were showery months, yet no great quantity of rain fell. In May the rains came on violently, and continued until the 24th, when the prevalence of easterly winds indicated the near approach of summer. By the 12th of June the dry season was established.

On the 14th of June I left Silvia, intending to go on to Puracé. Halting at dusk, we remained for the night at a place called Rio Blanco, which may be four miles beyond the River Palacé. Leaving in the early morn, the way led to the eastward, over extensive grassy undulations, which form part of a very large farm called Las Huacas. It was observed that the shoulders (*paletas*) of the cattle grazing here were a mass of sores from the injury inflicted by a species of mosquito. Full-grown cows suffer most. Young cattle do not appear to be much troubled, and bulls especially seem almost proof against the attacks of this insect. Traversing these open lands, we came to the northern bank of the River Cauca, which at this place flowed in a deep channel, a hundred feet below the surface of the ground, presenting the appearance of a vast winding canal. Proceeding farther, we left the river bank, and began the ascent of hills of clay, which were clothed with a vegetation of a very varied character. The whole aspect of the country as yet consisted of undulations and low hills, separated by clear crystal-like rushing streamlets. What struck me as singular was, that most of the streams had worn down a channel in the volcanic rocks, to a depth of from 12 to 15 feet. While going along a sloping declivity, we passed a place called San Isidro, which consists only of the church and a place for the priest, but there are a few houses scattered about. Beyond this, the road descended by an intricate winding to the Rio de Vinagre, and led up its northern bank for several miles, when a wooden bridge had to be crossed, and we then proceeded by a very steep

zigzag ascent to an elevated tableland, on which is situated the village of Purace, at an elevation of 8,500 feet. The village is composed of two rows of thatched houses running parallel to each other. There is a population of 400, who are chiefly Indians. The principal produce is wheat and potatoes. Snow is brought down from the volcano and sold in Popayan. Looking from prominent points of the tableland, there is plenty of evidence to show that the surrounding country at one time must have been literally quarried over by volcanic action. The sloping plain occupied by the village has on the northern side the Rio de Vinagre, with "two mills of water," and to the south the Rio de Molindo, which has only "one mill of water." Through the kindness of the Alcalde, I was provided with a little low-roofed damp house, where the light of day could hardly penetrate. My reasons for going to Puracé were to change the air on account of the "peste," and also to examine the quinine plants which grow in the adjacent forests. Hardly any bark is to be found here now, and it was hopeless to look for seeds. The tempests, too, enveloped the *paramo* to a greater or less degree, and the gusts of wind were so fierce as almost to blow one down. Besides, there was no salt in the village, although I was told I would find everything; and an Indian who was to have brought me some from Popayan had it taken from him at a house on his return. Señor Velasco, a Spanish American, on hearing of the affair, kindly offered to give me what I might want, but ultimately I had to send the lad for salt.

The upheavals of the volcano Puracé, which run along from east to west across the southern side of the Guanacas, are on a grand scale. Señor Levano, the Alcalde of Silvia, who knew this region well, assured me that the ridge is composed of eight distinct snowy mountains. These were probably thrown up in succession during many *siglos* of centuries. At present the volcanic agencies of the Andes appear to be working from east to west. Thus, I have noticed that it seems to be in this way, when the first crater of a volcano is raised to a certain height by lava or other matter it becomes inactive, and a new crater is formed at or near the base of the cone but to the west side or more or less in that direction, and this, on attaining a certain altitude, is succeeded by others on the same plan. It is also remarkable that the oscillations of earthquakes seem to proceed from east to west. I infer so, after having observed many instances in villages, and also in the *campos* or rural districts, where the walls of dwelling-houses and churches had always fallen towards the west. Among the chief curiosities connected with the volcano are the "respiraderos" or vents, whence issue sulphureous vapour, which no doubt is forced or finds a passage from the interior of the crater. Large quantities of sulphur are likewise found. On the north side of the village of Puracé the Rio de Vinagre flows down a deep ravine, and to the south there is another which contains the Rio de Molino. These unite at the base of the tableland, four miles below the town, and afterwards join the River Cauca. The Rio Vinagre comes from two sources near the volcano. Its water has a very agreeable taste, like cream of tartar, and it gives off a strong odour something like sulphur. No vegetable or animal life exists where the water flows, therefore the bed of the stream is perfectly clean and free from lichens.

The Puracé Indians are a robust race, resembling those of the Paez territory, but they as well as those of Coconuco speak the language Guambiana.

I proceeded to Silvia on the 14th of July.

The instructions sent to me to return quickly with plants took three months from Panama to Popayan, such is the dilatory and most uncertain system of communication in these countries.

In order to facilitate matters, I went to Popayan, where I was accommodated at the house of Señor Concha, who, besides houses in the city, had an adjacent estate on the bank of the Cauca river, called Campamento, once the property of a Spanish family. The large mansion buildings on the estate were of the old antique style, and must have cost much money. Besides, there were large corridors, terraces, *paseos*, *descansos*, all going to decay, but showing that the former possessors were people of taste and opulence. Extending from the house to the margin of the Cauca river, were the remains of a large orange garden, with the fruit strewn in great abundance on the ground, as on account of revolutions and other circumstances these places are quite lost. I have always received much kindness from this Señor Concha and his family, and they were perfectly respectable people.

Returning from Popayan, I went on to Pitayo on the 14th of September. On the 15th, I began to select plants in earnest, and the place selected was the forest immediately to the north of the Piñon. Here the plants were scarce, so we descended to a deep ravine near the "paramito," which is the source of the Rio Ovejas. After passing the little streamlet, I left the lad to make a fire and look to the horses and went myself in search of plants. I was pretty successful, and returned with 21. Again re-entering the forest, and being busy looking for plants, I happened to go on to another path, for the Indians have a number everywhere through these forests. I did not observe my mistake until I wished to return, when, after going for some time one way and another, I fortunately got near enough to the lad to hear him answer when called to, and so got out of this difficulty. A few minutes afterwards a fierce tempest of hail came on, which compelled me to take shelter under the massive trunk of a fallen tree. I told the lad, who was crouched up in a corner, to put more dry branches on the fire, but he did not seem inclined to move, so I had to go in haste myself, and put on wood sufficient to keep up a good fire. In an hour afterwards the storm of hail was past, when we ascended to the Piñon, where I hid the plants, along with others dreviously collected, and went on with all haste to Pitayo.

Pitayo. Next day, although afraid of another hailstorm, I went up to the Piñon, and brought down the plants to the village. These were carefully packed with the surface vegetable deposit taken from places on the adjacent slopes, covered with primitive forest, which had been growing on in succession for many centuries. This could be torn up in large flakes by the hand, and consisted of vegetable fibre, decayed leaves of trees, rootlets, and rhizomes of small ferns. Being the produce of plants and trees growing at a high elevation and exposed to a rarified atmosphere, it was not liable to lose its natural porosity, or become soured or soaked with water. It was, therefore, valuable for packing, and subsequently I used it for establishing the plants in the cases.

September 17th, I went to the house of the Indian Chowendo, and went to a piece of forest some distance higher. Profiting by past experience, I took with me an Indian lad, who was to serve as a guide. On entering the forest, I told the lad Rafael Carbajal to go along the side of a low ridge, while I, with the Indian lad, searched the other side. After some time spent in collecting, we stopped in an opening in the heart of the forest. The plants were counted out, when it was found the lad had collected 14, while my bundle numbered 52. In this collection were a number of plants of the Piñon variety.

September 18th, I packed all up, and went to Silvia. On 13th October I returned to Pitayo to recommence the search for plants. I took with me the lad Rafael Carbajal, and his younger brother also, and we were provisioned with salt for a week. Next day we went in search of plants, accompanied by an Indian lad as guide. He was to take us to the eastward of Chowendo's, where we had been before, as we wanted to penetrate farther into the forest than we had done formerly, and search another part on our return. After some hard travelling through damp shrubs, we reached the forest and set to work. Many plants were met with, of which about one-half had been already barked, chiefly by Indians, who, later in the day, seemed to be collecting, as voices were heard at a distance. Here, near the upper limit of quinine trees, I felt the cold air which came down from the adjacent paramos. The peculiar aroma from the trees and shrubs was very agreeable, but, owing to the elevation and other causes, I had to suffer a dull headache all day. Not even the Indians live in this climate. The highest house, which was Chowendo's (lower than where we were working by 200 feet) was 9,600 feet above the level of the sea. In these elevated wilds we find a vegetation often singular in character from that of the tropical valleys below. Many of the plants have hard foliage, or are clothed by a thick warm woolly down. Some bear inconspicuous flowers, while others, such as *Gentians, Thibaudias,* and many *Asteracæ*, growing frequently in severe climates, are remarkable for the profusion of flower and strength of colour. In the afternoon, a large number of plants were collected, most of which were good, although a few had to be rejected as being too tall for planting in cases. On this occasion I was only four plants ahead of the Carbajals, who were, however, very fortunate. Next day there was heavy rain, and I was engaged packing the plants. I was always kept anxious about the horses, on account of the thieving propensities of the Pitayo Indians.

Votes were being taken at this time throughout the Republic for the election of a President. Señor Ventura, who was a favourite with the Pitayo Indians, advised them to vote for General Mosquera. The General had formerly made good laws to curtail the rapacity of the friars; he had also opened and cleared out the occupants of all convents and nunneries, and banished every Jesuit priest from New Granada. Religious processions were likewise very properly prohibited in the streets. However, the law on this point is at present relaxed, so that saints and relicts are again carried about. These do not attract fame as formerly.

The Indians did not care much about the election; they would have been better satisfied with a revolution, when there would have been an opportunity of attacking the *haciendas*, and carrying off loads of plunder. Every house and bank of earth around Pitayo is pierced with balls, the result of the war in the late revolution. The Paez Indians were then brought together by a chief, called Waynass, who was popular about Huihla, where there are 16 towns and villages. Waynass was himself a Paez Indian. His family must have been wealthy, as he was sent when young to Popayan, where he was taught to read and write, a most uncommon thing for an Indian in these parts, but which may have been beneficial to him, as he was the only Indian leader who did not practise cruelty towards the whites. Some time after the commencement of the war, when crossing a rushing stream which unites with the River Paez near the volcano of Huihla, the bridge broke down and he was carried away and drowned. His body, brought down by the current, was afterwards found near the city of La Plata, which, calculating the numerous tortuous windings of the River Paez, will be 70 miles from the spot where Waynass lost his life. This may convey some idea of the force with which these mountain rivers of froth and foam tumble wildly down to the valleys. The Paez Indians are generally taller than those of other places. They are strong muscular fellows, with broad chests and shoulders, and their skin is as tough as the hide of a Malabar elephant. Neither thorn nor stump will readily scratch or hurt them. They will sit under a tree all night, rather than go to the house of a Guambiana Indian, whom they consider weak, silly, and useless. On the whole, they are complete scoundrels, although I noticed some good traits about them. Besides arms of some kind, they generally carry a good-sized stone under their ponchos. One of these Indians would chase or frighten away about a dozen Indians of the Ecuador or Peru. During the revolution they committed many shocking barbarities on the Spanish Americans.

On the 18th of October I had the plants packed and returned to Silvia. Towards the end of this month torrents of rain fell almost continually, accompanied with deafening loud thunder and flashes of lightning, which followed in quick succession, giving at night an aspect of astonishing grandeur and sublimity to the Popayan valley. Almost everyone became sick in one way or other; the majority of cases being fever of a typhoid character. I was myself also taken ill of a kind of fever, which was followed by the most tremendous shaking I have ever experienced. The paroxysms of fever or ague came on at intervals of 14 or 16 minutes. During one of these fits I actually fell out of bed and hurt my face, and my left shoulder was discoloured for some time afterwards. The fall stunned me a good deal. Several parties then came to see me, and I experienced much kindness from Señor Concha and Señor Ozaeta, influential gentlemen belonging to Popayan, but who possess large farms in different places. The celebrated Chinese traveller, Mr. Robert Fortune, got better of an ague merely by being pinched all over by a Chinaman, who specifically dipped his knuckles in a basin of hot tea, but that would not serve as a remedy for the agues of tropical America. On the afternoon of the fourth day of my illness I got up and moved about, but I was weak for some time afterwards. Many people were astonished to see me going out so soon, as, in the case of two sons of Señor Concha and others who had had fever a period of from two to three months elapsed before they ventured much out of doors. These had the advantage of being natives of the country, and, besides, had every kind of care and attention, which, be it understood, the traveller in foreign countries need never expect. Even with the thermometer at 60° there was a continual chilly uncomfortable feeling, and the days were so obscure that at one time only a few glimpses of the sun were seen during two weeks. A mouldiness, too, began to appear on everything, the mould in question being an exceedingly minute species of fungus, which reproduced itself with extraordinary rapidity. As for my specimens of leaves and barks of the quinine tree, they were soon quite spoiled; indeed, to preserve them properly, I would have been employed all day in brushing the mould off.

When I was better, I set about getting four cases made for the plants. This was a work of the most difficult nature imaginable. However, it was accomplished, and the plants numbering in all 270 were planted. The weight of each case was only 39 pounds. One special object in having the cases so light, was the facility with which they might be carried by horses, or even Indians for almost any distance, and by any of the routes either to the ports of the Pacific or Atlantic. The plants after being put in the cases were allowed some time to be established.

On the 23rd of December I left Silvia and proceeded to Paniquita, which I reached about midday on the 24th. The Alcalde, whom I had previously spoken to, procured a small room for me in the corner of the plazza.

Chinchona cordifolia, a tree of spreading habit, attaining to a height of 26 feet, grows abundantly around Paniquita. The bark of the tree is not collected, but there is an upright growing variety of this species found in places on the undulations that extend from the village to the base of the mountains, which yields some quinine, and which, if properly managed, might be exported by the natives, as it could be easily collected in great quantities. I could have taken seeds or plants of this kind, but I did not consider it my duty to do so, for the truth is, there are enough of these tropical or semi-tropical kinds in India already. And so, although this species would at first seem to be an acquisition by exhibiting a strong habit and free growth, yet after the expense and labour of planting it would ultimately have caused some disappointment to planters and others, and I would have been censured. It is true the locality is not very hot, for even bananas do not grow at Paniquita, still the region is of a tropical character, with a temperature ranging from 60° to 75°. The bark of the *C. cordifolia* does not appear to be used as a remedy for fever by the natives of the Popayan valley, who on coming to Silvia slice off pieces of bark from the stems of young trees of the Pitayo kinds, a few of which many people have planted in their gardens. The village of Paniquita is built on a piece of elevated sloping land, which occupies the centre of a circular depression when viewed in conjunction with the surrounding landscape, which is very fine. The depressed portion appeared to be two miles in width. It is ornamented with little undulations and rivulets, where grow a few trees, but most of the vegetation is semiarborescent and shrubby. This vegetation being chiefly tropical has a different hue from that of more elevated regions, and, when waved by gentle breezes, the peculiar changing and glistening appearance of the promiscuous foliage and of the large purple flowers of the bush and tree *Bifarias*, which abound in the surrounding country, present to the traveller an indescribable aspect of harmony and serenity. Looking from this point to a greater distance, to the eastward there is seen the tremendous dislocations and volcanic upheavals of the Guanacas and Puracé, the extensive slopes of which, divided by many wooded hills and ravines, unite in forming a landscape of a superlative character. In places, the beds of several of the streams which flow down from these mountains is worn down in the hard volcanic rock as if shorn to a depth of from 20 to 30 feet, so that, although the volcanic and other agencies are still proceeding, there is sufficient evidence to show that these streams have been running on in about the same way for many ages.

Paniquita is now diminished to 42 houses, but there can be no doubt that previous to the conquest it was a place of much importance. The plazza or square is an acre in extent, with an ancient Indian causeway on the north, south, and west sides, that on the eastern side having been formerly destroyed by the Spaniards. The remaining portion of the causeway is 36 feet wide, still in a perfect state and quite serviceable. On walking over

over it the difference from a common causeway is quite perceptible, being almost similar for ease to travelling over a pavement laid pathway. The selected smooth stones have been carefully and firmly bedded on a kind of clay in order to take advantage of its adhesive nature.

On December 23rd I returned to Silvia. During the succeeding days the place was in a perfect uproar as the feast of the Indians happened at this time. Torrents of rain fell, and the roads became very muddy.

In the beginning of January 1870, I went to Popayan, to make some arrangements with the house of Señor Olano, who has transactions in a commercial way with merchants at Panama and other places. On my return it rained nearly the whole way. As might be expected, I had a little ague, which, however, was very benigno, and I was soon better, through the kindness of my friend Señor Paredes, a platero (silversmith), who rubbed me over with some aguardiente. This is considered a grand thing, and an alivio, especially when one is not very ill. There are besides a multitude of native remedies, some of which at times may be useful.

In preparing for the journey, I found on inquiry that no one was willing to go down the valley on account of the rains, which were unusually severe. I was advised by my friend Señor Ozaeta that the only remedy would be to despatch the lad to the Popayan valley, where the natives are more accustomed to the sickly climate of the low-lying plains and savannas. This plan was adopted, and the lad succeeded in hiring the necessary number of animals at a farm, but returned with his limb bruised. It appeared that the horse had fallen on going down a steep descent, and partially rolled over on the lad, who had a marvellous escape. The lad's younger brother, Benino, who went to look for my horse, also returned lame. The mountains and slopes are so steep that accidents occur even to the natives. As the lads were soon better, preparations were made to proceed at once. Everything not rigidly necessary was put aside, other articles were lightened as much as possible, in order that the march might be rapid and successful, while travelling amidst torrents of tropical rain, and over bad roads, with here and there marshes and deep holes full of water. The fording and crossing of rivers by canoe had also to be kept in view. A delay was again experienced, as some one had caught my horse, and taken the shoes off.

The four cases formed two loads, two being for each animal. Another was loaded with provisions, and other necessities for camping out on the plains. The lad Rafael Carbajal and his younger brother brought a saddled horse to be used either for riding or cargo, in case of an accident. A fifth brought my luggage, or rather I might say rags, and some quinine bark, and dried specimens also of the tree. To this number has to be added my own riding horse, and one brought by the lads in charge of the hired animals, thus making seven in all. The latter horse carried provisions for the lads on their return journey. This precaution these lads were obliged to take on account of the severity of the season, which prevented in great part the ordinary circulation of commerce.

On the 30th of January the lids of the cases were fixed down, and each case was afterwards enveloped with a piece of stout packing cloth. I packed the plants so securely and well that the cases might be whirled round in any way, without moving a single plant.

The two lads from the Popayan valley, who were brothers, agreed to go with me to the point of embarkation, below Las Juntas, and, if possible, the brothers Carbajal were to go there also, and one was to go down to Buenaventura. All were told that no extra clothing and not a grain of anything else would be allowed, because the march would be chiefly through hot valleys, so that the lightest possible fragment of clothing in case of getting wet would be all that would be required. There would be no way of escaping, because if, after leaving, anything else was found, it would be disposed of or put away at once. The lads in charge of the cargoes brought a horse at their own cost, and therefore could not be so restricted, nevertheless an opinion was given that they should not exceed any of the other loads. These measures and indications were necessary, because many peons will, if permitted, hide a number of little bags about the loads, which to a reasonable extent might be allowed in fine weather, but in the present case it was not convenient, with bad roads and work to be performed within a certain time. It will be understood that if I had been detained on the way anywhere before reaching the coast in time to get the steamer, I would have been obliged to remain at Buenaventura or some other place for four weeks, as there is a steamer only once a month to Panama. In case of detention, the plants might have suffered considerably. At dusk every one was present except the lad Rafael Carbajal. One was sent to look, but he could not be found. The opinion was that he had "tomado" (taken). After a further search, he was brought about one, a.m., quite drunk, and so had to sleep away what he had "taken." There is no need to moralise, because stimulants and narcotics have been used from the beginning by all nations, and will probably continue to be so still; but perhaps it might be remarked that every one should be conscious of the certain necessity to exercise the greatest possible prudence in taking anything intoxicating when occupied in executing any kind of work either mental or physical. In justice I must add, that intoxication is by no means common among the New Granadians, although the consumption of strong drink, by both males and females, is enormous. They say, "The climate asks for it." Nearly every second house is a distillery on a small scale, and generally the natives carry this rum when on a journey. Considering all things, I cannot say that it produces many injurious effects to these people.

Very early on the morning of the 31st, the animals were brought and loaded, and the march commenced. The lads had only a very short period of rest during the night, but they took the road cheerfully, and the word "va" (go) was often enough repeated as the animals went briskly along towards the valleys. At first the road was tolerable and not to be complained of, but as we proceeded it gradually became worse. In places, high banks of red or yellow clay rose on each side of the road. The way in such places presented a kind of "chamba" or ditch, swimming with mud, through which the animals had to struggle with difficulty. Even with every one "a pie" and doing their utmost, it seemed as if we should not be able to advance. This part of the road was over rather steep hills of clay, covered in general with a deep vegetable deposit. Farther to the west, these hills gradually decline to inequalities, which form the feature of a vast tract of country adjoining the Popayan valley. The vegetation alternates from trees to shrubs, according to circumstances and conditions. A few oaks often fringe the banks of the streams, with some *Chinchona cordifolia* higher up, which also may be seen growing over the elevations, intermixed with shrub *Bijarias*, *Peperomias Melastomas*, and *Solanums*. Underneath and among these grow lesser shrubs, herbaceous plants, and ferns.

After midday the state of the road improved, and during the afternoon we travelled down a long gradual descent on the margin of the plains. Near the village of La Atico, we halted at a house which was the home of the two lads in charge of the cargoes. The animals were hardly unloaded when it began to rain heavily, a dreary prospect for the march of the following day. The old man of the house, however, was very lively and kind, and soon began a long conversation, which lasted to midnight, about the lands and cattle he used to possess, and how the latter were taken from him during the revolution, all of which I had good reason to believe was perfectly true. He told me he was once seized with an ague here while walking, which "threw him right down on the ground." Thus it will be understood that the agues of the New Granada valleys affect even the natives in a serious way. Early next morning the lads were assisted by the old man to load, and we resumed our journey.

Shortly after leaving, our path united to the principal road, or *camino real*, which leads up the Cauca valley to Popayan. On my return journey, I deviated a little, but only in a few places, from the road I took on going to the quinine forests. Owing to the rains of the previous night, the road was covered with little lagoons of water, through which the animals were quickly driven, a lad going a little way in advance, to select the best places for passing. In this way the animals were managed with great energy, perseverance, and success, during a rapid march of several hours, over broken and difficult ground and slippery steep banks. Finally a rocky ravine had to be crossed, where the way was dangerous even for mules. With the threatening appearance of the sky, it was resolved to encamp immediately on reaching the River Ovejas. A few minutes after reaching this place, torrents of rain came down in such a way as I have never before witnessed. It seemed as if the harness, loads, and, indeed, everything belonging to us, would be actually washed into the river. In about an hour this tremendous tropical tempest ceased, but the river remained swollen for some time afterwards, although in the morning it appeared down to its usual level. Every one passed a most miserable night, and the animals had hardly anything to eat.

On February 2nd, at daybreak, we commenced crossing the river by canoe. From the River Ovejas a long ascent had to be climbed, then a ravine had to be passed which gave us much trouble. The greater part of the bottom of the ravine had a little forest of a species of Chinchona. Now here was a thing to be observed. While the really good kinds of quinine trees are never found growing in damp places, nor even on dry level ground, this species was flourishing in a mass of soft fetid clay and stagnant mud. The trees were loaded with fruit. The bark is dry and sapless, but, with this exception, it completely resembled in habit and appearance the *Chinchona succirubra*. Although the road was not in good condition, we made considerable progress, and at 4 p.m. entered the village of Jamondi, the natives of which are mostly of negro extraction, but there is a mixture of Indian and Spanish races. The lad in charge of the cargoes thought that, as the ground was so damp from recent rains, we might take up our quarters at some house in the village, to which I agreed. On inquiry, accommodation even outside in the corridor was refused to the whole band except myself, and to me also the concession was made in a tardy way. Without allowing any further inquiry, we proceeded through the village, and halted at the Jamondi river. On unloading, the lads at once began to arrange the quarters for the night on the wet savannah, with sheets of water lying around. While busy about various things, an old man approached from the village, who, as he came near, was asked, "Hay Dios aqui?" "Why not?" was the reply. An explanation then followed, when the old man, pointing to a large house in the village, said it was his, and that we would be welcome there. But the lads were angry, and would not listen to the proposal, as the horses and mules were now loose on the plain. Going away early in the morning we were in Cali before dusk.

February 5th, we left Cali, and, crossing the mountains to the westward, remained for the night at a place in the Salado valley, some distance below Tocota. Nearly the whole of this tropical valley is a kind of desert, waving with tall brown grass. Fragments of pottery, observed at certain depths in the soil, show that at one time it was inhabited.

On February 6th we went down to the bottom of the valley, and remained above the river bank. At daylight we went down a recently opened way by the gorge of the Dagua, where the river passes through a range of mountains to reach the Pacific. The Dagua here,

here, for a distance of three miles, is walled along, on each side, by crumbling precipices, which rise 4,000 feet above the bed of the river. Generally the road is five feet in breadth, although in places there is just room to walk, as portions have fallen away. The animals were led or carefully driven until we got out of the ravine. At the lower part of the gorge the road was not yet fully opened, so that a secondary ridge had to be climbed before we could get to Las Juntas. Rain began to fall heavily, so we stopped for the night a little distance below the village. At midday of the 8th we arrived at Puerto.

The result of the journey to the lads, whose ages ranged from 14 to 20 years, was rather severe, although they would soon be well again. One was lame from rheumatism in the knee, another had a sore foot, a third was simply tired, and the lad Benino had his legs swollen with quite a gouty aspect. But things in this way continually occur to most people when travelling these valleys. As a general rule, the natives from cold localities of the interior do not bear well the excessive hot climate of the coast. Considering all things, the march, although it had to be made at the worst season of the year, was very successful, as no one was left behind, and the animals, owing to the light loads, and to all travelling much on foot, were in good condition to return up the valleys. It must be understood that the journey direct from Silvia or Popayan to Puerto is hardly ever made by the same parties; the invariable custom is to stop at Cali, when the carriers and traders of that city take the transport of produce over the western Cordillera to Las Juntas or Puerto. The appearance of the Dagua, which was swollen, rather alarmed some of the lads, and none were inclined to go to Buenaventura.

At six o'clock on the morning of the 9th of February the river was reported unsafe, but two hours later the men who were to manage the two canoes said that we might proceed. The cases and other things were therefore placed in the canoes with as little delay as possible. The first canoe, lightly laden, and managed by a negro, was sent about twenty yards ahead. In the second I went myself, which was directed by a lad who was perfectly sober, which the negro was not. On going down some rapids, the negro often disappeared amidst the varied ripples of the river, caused by an immense body of water rushing irresistibly over an uneven surface, in which large stones and timber were partially embedded. As we approached the *saltito* (little leap), I felt anxious about how the negro was to go over it. Just after he went down the cataract, his canoe gave a peculiar lurch and almost stopped, but he brought it out, although with some difficulty, to smooth water. He then looked round seriously, but we went through safely, for the lad executed everything with great judgment and rapidity. We had a very rapid passage from Puerto to Buenaventura, the whole distance in descending the river occupying only a little over four hours, a journey which, on ascending, took me two days and part of a night,

On February 16th I embarked with the plants on board the steam-ship "Talca," and came to Panama on the 19th. Next day I was fully occupied in getting glass put in the cases. I had good assistance from Her Majesty's Consul, Mr. Wilthew, "*el hombre excelente*," to whom, and also to Mr. Henderson, previously Her Majesty's Consul at this place, I have been very much indebted on numerous occasions.

On February 21st the cases were put in No. 119 railway truck, to be sent across the isthmus. I likewise went myself and embarked the same evening on board the steamer "Seine" at Colon. Good accommodation was afforded on board for the plants, but they suffered a little at first from the heat in the West Indies, and subsequently from the very cold damp fogs in the Channel. On the morning of the 18th of March I disembarked at Southampton, and proceeded with the plants as instructed to Kew. Owing to various delays I did not get there till 10 p.m., and, although notice had been previously sent to the Botanic from the India Office, yet such was the rule or idea that I only got two cases in a hothouse that night; the other two had to be left at the station until next day. It was midnight before I could get shelter myself from the cold which one feels so much on coming recently from a tropical climate. The despatch of the plants was delayed till autumn, to avoid the summer heat of the Red Sea. The loss during the voyage did not exceed twelve plants. This will not be considered much when it is remembered that the plants were 37 days on the journey, nine of which they were shaken while being carried down the Popayan and Cauca valleys. The situation of the Kew Botanic is now very unfavourable for the existence of plants, on account of the excessive dryness, dust, and smoky atmosphere of the locality. When the weather became more moist the plants were recased and grew very vigorously. On the 26th of October the cases were despatched by rail to Southampton to go on by steamer to India, in accordance with instructions from the India Office. The plants were so well established, and had such healthy roots, that they could not fail to go well to their destination.

This work with the plants might have been dispensed with, if I had been aware before leaving New Granada, that the seeds I had collected and forwarded were already growing in India, but there need not be one moment of reflection in that way, for the matter is all the more satisfactory.

Of seeds, there were 55 packets sent. To despatch these, 14 journeys had to be made from Silvia to Popayan, which on going and returning was a distance of 48 miles. Thus, these journeys alone, exclusive of the search for seeds, amounted to 672 miles. Although the varieties of seedlings raised by Mr. M'Ivor appear to be the same, yet there will be a difference observed when these are six or eight feet high. The quinine barks of different places have various designations given by the Indians, natives, and foreign bark merchants. There are the "yellow kinds," *Amarillas*, then the *fina del Piñon*, *Roja del Pinon*, *la fina*, *Anaranjada fina*, *blanca*, &c.

As there has been a good deal of discussion about these Pitayo barks, I propose to take time to consider certain relative details. But I have given dried specimens of the best kinds to Mr. Howard, the quinine manufacturer, whose private collection of barks and specimens is perhaps unequalled in Europe. This collection is very interesting, on account of the numerous phases of bark from the different districts and *faldas* along the course of the Andes, where I have myself travelled, and which are not now seen in commerce.

As regards those of Pitayo, there appear to be three distinct and prominent kinds, one of which yields the "yellow barks," another the "red Piñon" bark considered so valuable by Mr. Howard, while a small lanceolate leaved variety gives the *Amarilla fina* of the Piñon. At present it is not possible to examine a developed healthy tree, as those from which I collected seeds were mere bushes from barking or ill-treatment, so that the natural habits of the plants were much injured. The quinine trees of Pitayo are being rapidly extirpated. I took home a few stems of plants which had been barked by the natives, some of which I gave to Mr. Markham and Mr. Howard, who can testify to this statement. I may remark that the assertions of Senor Lorenzano (*Chinchona*, Blue Book, 1866, page 199), a New Granada bark merchant, to Mr. Griffith, Her Majesty's Consul at Bogota, giving an account of the "Conservancy of the Woods," where *Chinchona* trees occur, is quite superfluous. M. Karsten is a truthful writer and confirms his statements, but that is just because he did not properly examine the forests personally, and believed the reports of the natives, some of whom will say anything.

Throughout the Andes of the Ecuador and New Granada every little plot of maize or potatoes, although not more than half an acre in extent, must be watched day and night, when these crops begin to ripen. Therefore, it is not probable anyone would attempt to cultivate quinine trees in the forest, where every person has a right to go. Capital punishment has been totally abolished in New Granada, the result being that the Government *correo* or post is attacked and robbed in the daytime. After acts of this kind, the guilty parties will be seen going about in a few weeks. Not that the natives are insensible to justice, but there are always *valimientos*, and *quejas*, and *lastima*, which prevent the proper operation of even benevolent justice among the people.

The red and yellow bark trees grow from 70 to 80 feet high, and from two to three feet in diameter. But the small-leave Piñon variety may not attain a height of more than 60 or 70 feet, with a diameter of from nine to 12 inches.

All these kinds may be found alike valuable, and they will bear the wildest hailstorms which may occur in India.

Three zones of vegetation and climate are represented by the mountainous regions of tropical America. The first which is tropical and mostly overgrown by expansive dense green masses of lofty forest, includes from the margin of the ocean up to an elevation of 6,000 or 8,000 feet, where the temperature will sometimes fall to within a few degrees of freezing point. Above this a second section or region, ascending to an elevation of 10,000 feet, embraces the upper forests of the mountains, where the grass, in the damp hollows or besides streamlets, may at times be seen slightly covered with white frost. This is the great flowery land of *Melastomas*, *Solanums*, and wild potatoes, besides being the true habitat of the best kinds of quinine trees. The last region of vegetation, which is mostly paramo, ascends to the margin of perpetual snow, with an elevation of 15,000 feet. Near the lowest extremity there is some stunted forest and shrubs, but its chief aspect is that of an extensive moor or waste, with hills and undulations clothed with stipa grass. Towards the upper limit there is a wonderful variety of remarkable species of *Composites*, *Gentians*, and *Drabas*, flowering profusely amidst rains, mists, and fierce tempests. From this it will be seen that the quinine region enjoys beneficial influences from both hot and cold climates. Throughout the course of the season the tree is exposed to hailstorms, drifting rains, fogs, and gleams of sunshine, with often high violent winds, which would blow M. Karsten's "hydrogen gas" *a la eternidad*.

The temperature of the Pitayo quinine region ranges from 45° to 75° Fahr., but the general variable temperature of the Piñon is from 45° to 60°. The climate indicated for the Pitayo bark is exactly the same as that required for the Crown barks. Pitayo is about 2° 30′ N., and the plants grow from 7,300 feet up to 9,800 feet above the level of the sea.

At Ootakamund, which is much farther north, the quinine region exists at 7,400 feet. The proper zone for quinine cultivation in India may be represented in the form of a wedge, the broad or thick portion of which is next to the equator, while the narrow or pointed part—*the elevation of which becomes gradually less*—runs northward. Beginning near the equator, there would be a wide region from 8,000 up to, say, 10,000 feet, more or less suitable for quinine trees. Proceeding to 12° or 14° N., the sites would be more contracted, and on going as far north as Captain Lee's plantation, Kangra valley, which is 32° N., the zone must be very narrow, for we find a record by Mr. M'Kay of hailstones 1¼ inch in diameter, and a temperature of 90°, which is *too high*. No doubt the conditions exist, but at a higher elevation. Yet I would not go too far north with these quinine trees.

On the Neilgherries, the proper climate for the best kinds is met with, and judging from the statements of Drs. Campbell, Thomson, and Hooker, equally as good localities might be found on the Himalayas; but I have been told that the "Crown" barks will not grow there. The coarse, stronger growing kinds might probably succeed best in that region, although, for my own part, I would almost prefer the "Crown" barks to any other, as these grow again so luxuriantly after being cut down. Complaints have been

made

made of the injury done by a kind of deer. Now the habit of the Neilgherry species coincides exactly with those of the mountains around Loxa. When engaged in collecting the "Crown" barks there in 1861, I observed that the young shoots of many plants had been cropped by a species of deer, which was really a very fine animal. About the Piñon, there was also a kind of deer, but it was weak and lean and not much larger than a goat. It did not seen to feed on the bark trees.

The only animal of interest about Pitayo is a kind of *Mastodon*, which is met with on the summits of the *paramos*, where it hides among clumps of low shrubs or in holes in the daytime, and comes out to feed at night. It is described as being in size and appearance like a bull calf (ternero) and perfectly harmless. As it cannot run fast, the Indians kill it and eat it. The natives say that this animal casts its teeth, and further, that it is very rare.

In the cultivation of the quinine trees, care should be taken that the situation is naturally dry, with sufficient elevation, and sloping so that a good-sized round stone, if put down on the ground, would roll immediately away. More level places are suitable also, but this remark will be understood. I am of opinion that quinine trees should not be planted on the Neilgherries below 7,000 feet. These observations apply to the best kinds found at high elevations, such as those of Loxa and Pitayo.

Hybrids are reported from India, but the *C. succirubra var. officinialis*, is a tropical plant, a variety of red bark from South America. For cultivation only goes a certain length, and never changes to any great extent the characteristics of any plant. And although several species of Chinchona may appear to be closely allied, yet it is very certain that there is often a great difference, both as regards habit and chemical properties. Thus the quinine trees of Loxa and Pitayo ripen some seed every month, whereas the *C. succirubra* and *micrantha* mature seeds only once a year. Also the bark of the latter kind contain chiefly quinidine, which, notwithstanding the *pronunciamentos* made by some, is inferior to quinine, and cannot supplant it in the European market. It must not be imagined that the best barks generally come to England. No doubt good parcels are occasionally met with, but I have been obliged to consider the English bark market as of a secondary character, for large quantities of the finest barks have always gone to France. When the Pitayo kind was discovered, it formed almost a complete forest in front of the Piñon, on the slopes and around the village of Pitayo. After being examined and reported on by a Frenchman and a German, a party was sent by a manufacturing house from Paris, who remitted a great deal of the choicest bark, some of which must have given 8 or 10 or even 12 per cent. of quinine. Subsequently, this bark went into trade, and the forests were demolished. But the bark spoiled and wasted would have paid off the national debt of New Granada.

Of late years, although the Pitayo bark has gone to Havre, much of it was afterwards sent to Germany. English classed bark, selling at 8 *d.* per pound, cannot come from Pitayo. As a proof of this assertion, I may state that Señor Gomez, who acted as agent for M. Leon Douay, —a French bark merchant—bought bark at two reales (about 1 *s.*) per pound, which might contain impurities, such as chips of wood or decayed bark, and these were generally picked out. The packing of each bale (weighing 120 lbs.), with the hides for wrapping up, which had sometimes to be brought from Popayan, would cost several dollars. Then 10 dollars had to be paid for every two bales to Las Juntas. Next the transport by canoe to Buenaventura would be one dollar per bale.* The insurance money was 10 per cent., and freight to Europe was charged at the rate of 15 *l.* per bale. Besides all this, an agent had to be paid at Silvia, another at Cali, and one at Buenaventura. Finally, a salesman or broker would have so much when the bark was sold. From this it will be seen that true Pitayo bark could not be disposed of for 8 *d.* per pound.

I have been assured by a skilful bark merchant that the French manufacturers are especially fond of Pitayo bark, and another kind, called "la menuda," that comes from Bolivia, and which may be the product of the *Chinchona Josephiana* of M. Weddell. Yet, in my opinion, much inferior bark is brought from Bolivia, but as it is often very thick, a fair amount of alkaloid may be obtained. Second-class barks are, perhaps, collected from hot localities. I at one time thought that these cheap kinds were not sold, but lately my observations lead me to infer that considerable quantities of tropical bark are sent to the European market, thus mostly justifying the mapping out of the *Chinchona* regions by M. Weddell as regards the commercial barks. I do not say that the barks grown in the warmer localities are always inferior, yet it should be understood that, with hybridizing and everything else, these must ever remain second in quality. The Bolivian kinds enumerated by M. Weddell, as well as the *C. Tucujenis* and *C. cordifolia*, are of more use to the manufacturers of quinine than the *C. succirubra*, which can only be considered a third-class bark.† The "red barks" may be considered valuable for decoctions.

Concerning the classification of the *Chinchonas*, perhaps the grouping of the known kinds, which is natural, by M. Weddell, may be taken as a basis. Mr. Howard's investigations in the definition of several species is important. However, I must say that the *Ladenbergia* section has not yet been well determined.

From

* Seron.

† According to the natives, *hail* is never known to fall where the *Chinchona succirubra* grows.

From the chemical researches of Mr. Howard and Dr. Herepath, a pretty clear knowledge of the alkaloids has been obtained; indeed, I am convinced that Herepath's arrangement of the alkaloids in reference to the ray of plane polarized light will yet be adopted in the classification of both *Chinchonas* and *Ladenbergias*.

As regards the practical development of the quinine tree cultivation in India, in a chemical point of view, much credit is due to Mr. Howard for his numerous examinations, but this observation is not intended to detract from what Mr. M'Ivor or anyone else may have done. Mr. Howard has analysed, and given decided ideas of the marketable value of each sort. I have also myself been indebted to him for the analysis of a small quantity of select bark from the Pitayo region. This bark, which was sent through Her Majesty's Consul, C. A. Henderson, Esq., along with some seeds, was the finest of the kind ever received in this country. It was not thicker than brown paper, and gave 9·41 per cent. of sulphate of quinine.

I will now only state that although the collecting of this valuable bark has occupied more time and labour than I or probably anyone else anticipated, the simple cause for that has been the almost complete extirpation of seed-bearing plants. The work should have been done 20 years ago. The French, through their agents, who were always living on the spot, attempted its introduction, but failed. This happened before I went to Pitayo at all.

While engaged with this difficult work, I do not hesitate to state, that all personal interest or benefit as regards myself was always completely put aside, and I would say so *libremente*, and that the only aim and purpose was the effectual performance of the duty with which I was entrusted. Notwithstanding the unprecedented success which has attended the introduction of quinine trees into India, I do not expect that the price of the best sulphate of quinine will be likely to fall, at least for some time, below the present rate. Quinidine, however, may be sold cheap enough in a short time. No doubt there is a good deal of quinine bark still in South America, but the consumption is everywhere increasing, and enormous quantities go to the United States. If a call was made at present on the Indian plantations to take the place of the South American supply for only one month, every single plant, even with wood and leaves, would be completely gobbled up. I would estimate the yearly quantity of bark exported from South America at 100,000 tons. The money paid by the people of all countries for the various preparations of bark and its sulphates, when retailed, will probably amount to 14,000,000 *l.* per annum.

The quinine trees of the Andes may be referred to three great points or centres, where the trees have been caused to grow in certain districts, which have formerly been subjected to extraordinary volcanic action. Pitayo and Loxa represent two of these districts, and no doubt a third exists somewhere in Bolivia. Nearly all the way from Pitayo to Loxa, the three Cordilleras of the Andes may be considered united, thus forming the most stupendous volcanic platform in existence. By a combination of certain circumstances and conditions on a great scale, these mountainous regions have maintained in a wild state for *siglos* some of the most remarkable vegetable productions. Certain kinds of quinine trees are found in separate localities, possessing the same principles, but different in growth and habit. A few of the species, although arborescent, grow so slender as to be classed by travellers as shrubs, while others become large trees. This diversity of species has been recognised by Karsten, Weddell, and Professor Jameson,* and also I may say by myself, after having perhaps examined more quinine forests than any other European. Of these quinine trees, some of the best are now growing in India

It is to be expected that, as the supply of South American bark diminishes, that from India will be required to take its place, so that the tree has not been introduced a quarter of an hour too soon. When selecting land at any place for a plantation, it would be well to ascertain if there are occasional showers of hailstones, for the more hail the more quinine.

I should suppose that the planting of Australian, or indeed any kind of leguminous trees in the vicinity of the quinine plantations might be dispensed with, because the leaves of such trees are hard and dry, and counteract but little the action of the sun's rays. Even "kumiry" is more meritorious. Rapid growing trees, with large soft foliage, are preferable, as these modify solar radiation, preserve a moist atmosphere, and produce *humus*, which is one of the greatest agents for vegetable development.

I am, &c.

Glasgow, 13 March 1871. (signed) *Robert Cross.*

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* "Synopsis Plantarum Equatoriensium."

— No. 9. —

(No. 3—Agricultural.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Simla, 7 July 1871.

In continuation of previous correspondence, and with reference to your Grace's Despatch of the 4th April last, No. 28 (Public), we have the honour to forward herewith the Report of the Commission appointed under our orders to inquire into various matters connected with the cultivation of chinchona in British Sikkim. We also forward copies* of the Orders passed upon the Report by the Lieutenant Governor of Bengal and by ourselves.

2. Our opinions upon the subjects treated of in these Papers are set forth in the letter to the Government of Bengal of the 29th ultimo, No. 18, and need no recapitulation here. We desire, however, with reference to complaints which have been made against what is called the competition of the State with private enterprise, to invite your Grace's particular attention to the 9th and 11th paragraphs of the letter to the Government of Bengal. The views we have there expressed very nearly coincide with those of your Grace, as stated in the 5th paragraph of the Despatch under acknowledgment.

3. We should regard with the greatest satisfaction any manifestation by private capitalists of increased interest in the cultivation of chinchona; but we feel that, as yet, the time has not arrived for the State to retire from the field in which it is acting as pioneer.

4. We shall keep your Grace informed of the results of the inquiries now being made by the Lieutenant Governor for a competent person to undertake the supervision of the manufacture at Rungbee.

We have, &c.
(signed) *Mayo*, &c.

Enclosure 1, in No. 9.

REPORT of the Commission appointed by the Supreme Government of India (Resolution No. 645, Proceedings of the Home Department, Fort William, 3rd February 1871) to inquire how the Supply of Bark from the Chinchona Plantations in Sikkim might be best utilised, and into other Matters connected therewith.

30 March 1871.

We were appointed to inquire, among other matters, how the supply of bark from the Government plantations at Rungbee, in British Sikkim, might best be utilised, and we received a separate instruction to examine Mr. McIvor, the Superintendent of the Government Chinchona Plantations in the Nilgherries.

2. We found that, as has been officially reported, *chinchona officinalis* has never grown well on the Government plantations in Sikkim, and is now largely dying out, and we recommend that what remains of it be cut during the present season, except a few experimental patches, which will serve moreover to supply seed. That portion of the bark which is worth carriage to England, and which will amount perhaps to 500 lbs., may be sent for sale in London, and the twig bark may be worked up at Rungbee by the machinery now there.

3. We found that several years must elapse before any considerable supply of *chinchona calisaya* will be given by the Government plantations, and in the whole of the following Report it will be understood that we refer to *chinchona succirubra* alone.

4. Mr.

* Letter from the Government of Bengal, dated the 8th May 1871, and enclosures.
Letter to the Government of Bengal, dated the 29th June 1871.

4. Mr. McIvor's examination was first taken. Mr. McIvor's opinion was that *chinchona succirubra* will never form a permanent forest plantation at Rungbee; that, as a rule, it grows splendidly for the first two years, and, where there is a good depth of soil, for the first three years; but that as soon as it reaches the cold subsoil it is attacked by canker, and that one in three of all the existing plants more than three years old will die out within the ensuing year, hence that the quantity of bark now upon the plantation is greater than will ever be hereafter obtainable from the existing trees.

5. Though we were not appointed with the express object of inquiring into the cultivation and prospects of the Rungbee plantation, yet it seemed to us that unless some reply was furnished to the opinion of Mr. McIvor, it would appear almost frivolous to enter upon a difficult inquiry as to how certain bark should be worked up, while it seemed unlikely that such bark would ever be produced. We also considered that, after having added general terms to their instructions, Government would fairly expect that we should not pass, without investigation, such an opinion as that of Mr. McIvor, a most accomplished gardener, and of more experience in Indian chinchona culture than any other man.

6. We accordingly collected the opinions of all other competent and experienced persons whom we could reach. These witnesses differ widely among themselves as to the nature, cause, name, and number of the diseases found among the chinchona plants, but they all coincide upon the one point of vital importance, viz., that *chinchona succirubra* is not likely to die out at Rungbee, but that it will form forest there, and yield from existing plants a continually increasing supply of bark.

7. It appears to us that in the case of the introduction of an exotic tree, its rapid propagation by cuttings, and its planting out under circumstances of soil and climate, which can hardly be supposed other than very different from those subsisting in its native land, it might be dangerous to predict absolutely whether the tree will stand 10 or 20 years; far more so to assume that it will stand 60 or 100 years, as it does in its indigenous state. We are nevertheless sanguine that no such complete failure and disappearance of the trees as that contemplated by Mr. McIvor is to be apprehended.

8. A small patch of trees, 374 in all, was planted out in 1864. Of these at least 100 died during the first year, and 230 are still alive, of which number about 90 were cut to the ground in December 1870, in the process of thinning; but diseased trees are stated to have been selected for thinning out. It therefore appears to us safe to entertain a strong expectation that the trees will stand seven or eight years; and should they stand no longer, a large supply of bark might be obtained by coppicing the plantations at that age.

9. It may be seen from Mr. McIvor's evidence that against this argument he would urge that, in his opinion, disease is rapidly increasing over the plantations, and that the present trees of three and four years old will not stand so long as those planted in 1864 and 1866 have stood. But, again, the opinion of the gardeners in charge of the plantations is unanimous that disease is not increasing on the plantations.

10. The reasons given by Mr. McIvor (in reply to Questions Nos. 30 and 30* of his evidence, *vide* Appendix A, No. 1) for supposing that disease is now spreading on the plantations, do not appear to us to be satisfactory. We therefore have not thought ourselves relieved from the duty of carrying out the main instructions of Government, viz., the inquiry how the future supply of bark at Rungbee may be best utilized.

11. The stems of a few trees have been attacked by borers, of which two kinds have been observed; also a caterpillar attacks the leaves. But we do not consider that either of these agricultural pests is present in such numbers as to cause anxiety.

12. We recommend that some method be adopted at Rungbee for obtaining, every six months, more exact statistics regarding the condition of the plantations.

The president, Dr. Simpson, and Mr. Broughton, agreed that a tabular schedule, somewhat like that given in Appendix G, might be adopted for a return of each year's planting, and that it was undesirable that the duty of filling these up should be entrusted to the gardeners only.

Mr. Clarke thought the form of schedule suggested by him, and given with his Minute in Appendix H, would be better, for the reasons therein given.

13. During the cold season of 1870-71, the Rungbee plantations have produced about 12,500 lbs. of dry bark of *chinchona succirubra*. Of this, 5,000 lbs. of the best, which is expected to fetch 1 *s.* 9 *d.* per lb. in London, has been dispatched thither for sale; the remaining 7,500 lbs. have been boiled down at Rungbee.

With regard to the stem bark which will be produced in 1871-72, the question of economical advantage between manufacturing it into chinchona alkaloid by Mr. Broughton's process on the spot, and the alternative plan of drying and packing it for sale in London, will ultimately depend on the cost at which such manufacturing process can be carried out on the large scale, and we do not feel that at present we are supplied with sufficiently exact *data* at Rungbee to enable us to report on this point.

14. We remark, for instance, that alcohol, 80 per cent. absolute, has cost from the medical storekeeper, Calcutta, 10 annas per lb., and the carriage to Rungbee cost 3 annas per lb. Mr. Gammie has reported that, with the aid of the Coffey fractional still now at Rungbee, he can make alcohol, 80 absolute, from hill maize, at a cost of 2½ annas per lb.; and if this can be done on the large scale, an entirely new economic aspect would be given to the whole question under consideration.

15. We

15. We therefore recommend that the bulk of the stem-bark be packed next cold season for sale in London, but that experiment on a considerable scale be made in manufacturing some of this bark at Rungbee, and that an accurate record of the outlay on manufacture at Rungbee be henceforth kept.

16. We recommend that the inferior bark be worked up at Rungbee.

The cost of working 1,000 lbs. of bark is not materially different, whether such bark contains 5 per cent. of alkaloid, or only ·5 per cent. of alkaloid; and hence the economic value of Mr. Broughton's process is hardly tested by trying it on the twig bark alone, from which all the finer bark has been picked out.

17. The president, Dr. Simpson, and Mr. Broughton, are strongly of opinion that the manufacture of chinchona bark, whatever process be adopted, ought not to be entrusted to other than a qualified person, and this opinion is much strengthened by the very serious admixture of copper found in the product last sent down from Rungbee; they are also of opinion that the present work by the two gardeners should be stopped immediately.

18. We are of opinion that it is of the highest importance that some method of working the bark without boiling (if such a method remains to be discovered in the case of young red bark) should be devised. We recommend that further investigation of the method of infusion, proposed by Dr. Simpson, be therefore carried out by a competent person.

19. Chinchona leaves do not appear to contain alkaloid in quantity at all likely to repay the expense of working. They contain quinovic acid to the extent of one or two per cent. their dried weight, which can be probably extracted and issued as quinovinates of lime and magnesia. The febrifugal value of these quinovinates has not yet been satisfactorily proved; their tonic properties are established; they are also said to be useful in bowel complaints. The Madras medical authorities are now experimenting with such preparations furnished them from the Nilgherries by Mr. Broughton. Pending the result of these experiments, we do not recommend that any attempt to manufacture the quinovinates be engaged upon at Rungbee.

20. We learn that the medical storekeeper is still obtaining from Europe, at high prices, considerable quantities of red bark to be used in decoctions, &c. We recommend that the indents for red bark in future should be made upon the Rungbee plantations. It is possible that, as red bark can be furnished thence at very small cost, the employment of such decoctions may be extended advantageously in the Government medical service.

21. We have appended a very full report of our proceedings and discussions, with appendices containing the examinations of the witnesses and various other papers, so that the whole of the information upon which our report is grounded is thus placed at the disposal of Government for reference. We have, therefore, supposed a long report unnecessary, and hope the present will supply a convenient summary of the results which we have been able to arrive at.

(signed) *J. Campbell Brown*,
Officiating Inspector General of Hospitals, } President.

C. B. Clarke,
Officiating Superintendent, Botanic Garden, Calcutta,
B. Simson, M.D.,
Civil Surgeon of Patna,
John Broughton,
Government Quinologist, Madras, } Members.

PROCEEDINGS OF THE COMMISSION.

Tuesday, 28th February 1871.

THE Commission convened under the authority of his Honor the Lieutenant Governor of Bengal, under whose instructions it had been placed for the purpose above indicated, and composed of Dr. J. Campbell Brown, C.B., Inspector General of Hospitals, Indian Medical Department, as President, and C. B. Clarke, Esq., Officiating Superintendent, Calcutta Botanic Gardens, in charge of the Sikkim chinchona plantations; Dr. B. Simpson, the Civil Surgeon of Patna, and J. Broughton, B.SC., the Government Quinologist, Madras, as members, assembled at the inspection bungalow on the Government chinchona plantations at Rungbee, in Sikkim, at 12 o'clock.

2. Read Resolution No. 645, of 3rd February 1871, of the Government of India in the Home Department; Letter No. 471, of 16th February 1871, from the Government of Bengal to the President, directing the early assembly of the Commission; Letter No. 1288, of 18th February 1871, from the President to the Government of Bengal, proposing

proposing that the Commission should hold its first meeting at Rungbee instead of at Calcutta; and Letter No. 532, of 22nd February 1871, from the Government of Bengal to the President, authorising the Commission to proceed at once to Rungbee.

3. Read Letter No. 191, of 27th January 1871, from the Government of Madras to the Government of India, Home Department, with Memorandum No. 971, of 15th February 1871, from the Government of India, Home Department, to the President, suggesting that Mr. McIvor, Superintendent of the Madras Government chinchona plantations, now visiting the Sikkim plantations, should be examined; Letter of 18th February 1871, from the Secretary of the Commission to Mr. McIvor, forwarding copy of Madras Government Letter, No. 191, and Memorandum No. 971, of Government of India, Home Department, above mentioned.

Appendix A, No. 1. 4. Mr. McIvor, having signified his wish to be examined at once, to enable him to carry out other engagements, the Commission proceeded to take his evidence without formal reading of the official correspondence, with the contents of which the several members of the Commission had made themselves fairly acquainted.

Mr. McIvor's evidence was considered of great importance, and the points he had raised to require a detailed investigation. It was thought necessary that all the gardeners employed on the Government plantations should be examined on these points.

Appendix A, No. 3. Mr. Gammie, the head gardener in charge, was accordingly called, and his examination occupied the remainder of the day.

5. The Commission also requested Mr. McIvor to accompany them round the Government plantations, and explain to them on the spot his views. He expressed his readiness to accompany the Commission round the plantation on Friday, the 3rd of March.

6. Some members of the Commission having suggested that Mr. Munro, the head gardener in charge of the adjoining plantations of the Darjeeling Chinchonah Association at Pomong, could give valuable information, the President directed the Secretary of the Commission to address the Secretary of the Darjeeling Chinchona Association thereon, and it was arranged that Mr. Munro should present himself before the Commission on Monday, the 6th of March 1871.

Wednesday, 1*st March* 1871.

The Commission spent the day in a tour round the Government chinchona plantation, in order to gain a general idea of them, and to enable them to better meet Mr. McIvor.

January 1870, Nos. 34-35.
February „ „ 47-49.
May „ „ 17-18.
November „ „ 63-74.
December „ „ 12-13.
„ „ „ 43-46.
„ „ „ 68-71.
January 1871 „ 36-37.
„ „ „ 44-45.

Thursday, 2*nd March* 1871.

1. The Commission met at 10 a.m., at the inspection bungalow, Rungbee, and read the correspondence, as per margin, forwarded with Letter of Bengal Government, No. 471, of 16th February 1871, to the President, and more particularly the portions of this correspondence relating to the cultivation of the chinchona plant.

Appendix A, No. 5. 2. Mr. Kennedy, the second gardener, was examined.

Appendix A, No. 6. 3. Mr. Jaffrey, the third gardener, was examined.

Friday, 3*rd March* 1871.

1. The day being very wet, the Commission decided that they could not with advantage go through the plantations with Mr. McIvor, and Mr. McIvor consented to wait at Rungbee till the next day.

Appendix A, No. 7. 2. Mr. Biermann, formerly second gardener, and now in charge of the manufactory at Rungbee, was examined.

Appendix A, No. 8. 3. Mr. Spicer, the fourth gardener, was examined.

4. The Commission devoted the afternoon to reducing into form the evidence already obtained, and subsequently visited the manufactory, when Mr. Broughton explained the details of the process.

Saturday, 4*th March* 1871.

Appendix A, No. 2. 1. The Commission went round the Government plantations in company with Mr. McIvor and Mr. Gammie; and immediately afterwards Mr. McIvor's evidence, given three days previously, was read over to him, in case he should wish to modify it at all, and his further examination was taken.

2. In the evening the three members of the Commission visited the lower part of the Government chinchona plantations in the Ryang Valley.

Monday, 6*th March* 1871.

Appendix A, No. 4. 1. The further examination of Mr. Gammie was taken.

Appendix B. 2. The cost of the several articles employed, and steps in Mr. Broughton's method of manufacturing the chinchona alkaloid, were investigated; and Mr. Gammie was instructed to furnish the closest account he could of the present cost.

Appendix A, No. 9. 3. The examination of Mr. Munro, as previously arranged, was taken.

4. In the afternoon the Commission went round the plantations of the Darjeeling Chinchona Association in company with Mr. Munro, who explained in detail, on the spot, his views regarding the plants.

Tuesday, 7th March 1871.

The President broke up the Rungbee sittings of the Commission, and the various members started *en route* for Calcutta, where the President appointed his office, at 2 p.m. of Wednesday, the 14th March 1871, for its re-assembling.

In the interval the President and two members of the Commission visited the *chinchona officinalis* on the tea plantation at Tukvar, near Darjeeling; and on two subsequent days the President visited the *chinchona succirubra* on the Tukvar and Dooteria plantations.

By the direction of the President, the secretary wrote to Mr. Mann, who had charge of the chinchona at Rungbee in 1865, in the hope of obtaining his evidence on many of the points raised by the evidence of Mr. McIvor.

The postmaster was unable to supply sufficient dâks for all the members of the Commission to journey at the same time to Calcutta, and the Commission was consequently unable to assemble at Calcutta till the 15th March 1871.

Thursday, 16th March 1871.

1. The Commission assembled at the office of the Inspector General of Hospitals, Calcutta, at 2 p.m.

2. The draft record of the proceedings up to date, which had been prepared by the secretary, was revised.

3. The President had requested Mr. Clarke to make personally, at Rungbee, a careful examination of lines of plants of *chinchona succirubra* in the plantations, with a view to arrive at more exact numerical facts regarding the extent of disease existing there. Mr. Clarke produced his notes of the examination carried out, and also the numerical results deduced, with remarks, which were read, and which numerical results and remarks are appended *in extenso*. Appendix C.

Friday, 17th March 1871.

1. The Commission met at 10 a.m. at the office of the Inspector General of Hospitals, Calcutta.

2. Mr. Scott, now curator of the Calcutta Botanic Garden, was examined. Appendix A, No. 1

3. The letter of Mr. W. Lloyd, honorary secretary of the Darjeeling Chinchona Association, to the President, under date the 2nd March 1871, was read, and instructions were given to the secretary to prepare the reply, of which copy is appended, together with Mr. W. Lloyd's letter. Appendix D.

4. The inquiry relating to the cultivation had occupied the Commission an unexpected time. The discussion of the subjects more particularly pointed out by the Government of India as the special object of inquiry by the Commission, was now commenced. Paragraph 5 of Resolution No. 640, in the Home Department, of 3rd February 1871.

5. It was agreed that the scope of the inquiry might be safely restricted to the consideration of the best means of utilizing the *chinchona succirubra* bark likely to be supplied during the next three or four years, because within that period there is no expectation that the bark of *chinchona calisaya* will be supplied in sufficient quantity for the question between export and manufacture to be of importance; and *chinchona officinalis* seems never likely to flourish at Rungbee.

6. It was agreed that twig bark, not worth more than 6*d.* to 8*d.* per lb. in London, would cost about 5*d.* per lb. to dry, pack, and convey thither, and would be best worked up in some way at Rungbee. The chinchona alkaloid produced from such twig bark by Mr. Broughton's process had cost, in the experimental manufacture at Rungbee, about 1-8 rupee per oz. to make, exclusive of cost of European superintendence; but this cost was considered capable of considerable reduction, for the reasons stated in section 16 of the Report.

7. The question of dealing with the better Rungbee bark, worth in London 1*s.* 8*d.* to 2*s.* per lb., was then opened. The value of such bark to Government at Rungbee would be 1*s.* 3*d.* to 1*s.* 7*d.* per lb. It was admitted that the advisability of working this up next year at Rungbee by Mr. Broughton's process or not depended largely on the value to be taken credit for on account of the chinchona alkaloid produced.

Mr. Broughton stated that the chinchona alkaloid produced by his process from Nilgherry red bark might contain roughly, on the average, 33 per cent. of quinine, 40 per cent. of chinchonidine, and 27 per cent. of chinchonine.

Mr. Clarke stated that the average cost to Government of the commercial sulphate of quinine supplied from home last year to the Bengal Medical Department was 6*s.* 1*d.* per oz.

Letters were read from Dr. Brougham, who had tried the chinchona alkaloid prepared at Rungbee by Mr. Broughton's process at the General Hospital, Calcutta, and from Dr. Macnamara, who had tried the same preparation in the Native Hospital, Calcutta. From these reports the chinchona alkaloid seemed of about equal therapeutic value with the commercial sulphate of quinine. A similar report has been given from a very much larger number of cases in Madras, in which Mr. Broughton's chinchona alkaloid has been tried.

Mr. Broughton argued that the value to Government of the chinchona alkaloid should be taken to be that of the commercial sulphate, which it exactly replaces.

Dr. Simpson, *contra*, said that its value should be taken to be the price at which European manufacturers would supply such a mixture of the alkaloids.

Saturday, 18*th* March 1871.

1. The Commission met at 10 a.m. at the office of the Inspector General of Hospitals, Calcutta.

2. The secretary's abstract record of the proceedings of the previous day was gone through and settled.

3. Dr. Simpson read a paper showing his reasons (adopting Mr. Broughton's figures) for preferring to send all bark home which is marketable. The secretary was instructed to embody this paper in the proceedings, and it forms the remainder of this paragraph.

Mr. Broughton, in order to make 800 lbs. of amorphous powder, uses 20,000 lbs. of bark yielding 4 per cent.; he values this at 6 *d.* on the spot; and adopting these figures, he shows that he can produce the whole 800 lbs. for 12,800 rupees. According to the only analysis of this product which is available, it may be considered to contain the alkaloids in the following proportions:—

20 per cent. quinine crystallizable - - - -	1,400 on 1 lb.
13 „ „ uncrystallizable - - -	910 „
40 „ chinchonidine - - - - -	2,800 „
27 „ chinchonine - - - - -	1,890 „
TOTAL - - -	7,000

The last quotations received from Mr. Howard show the prices to be respectively for large quantities—

	£.	*s.*	*d.*	
Quinine - sulphate - - - - - -	5	6	8	per lb.
Chinchonidine „ - - - - - -	2	–	–	„
Chinchonine „ - - - - - -	–	12	–	„
Purified quinoidine - - - - - -	–	4	–	„

An ounce of these mixed salts at these rates will cost Government about 2 *s.* 6 *d.* in the home market.

Now, if the 20,000 lbs. of bark were sent home, I calculate it should fetch 1 *s.* 9 *d.* at the present time, judging from Mr. Howard's letter to me of 22nd February. Allowing the large margin of 11 *d.* per lb. for cost of growing, packing, and dispatch to England, there still remains a profit to Government on it of 10 *d.* per lb., giving 8,333 rupees. The account then stands between the cost to Government of obtaining 800 lbs. of alkaloids out of 20,000 lbs. of bark by Mr. Broughton's process, and the cost of obtaining 800 lbs. of alkaloids by purchase in Europe after sale of 20,000 lbs. of bark there, as under :—

	Rs.
800 lbs. of alkaloids, 20-8 rupees per lb. - - - -	16,400
Deduct net profit on sale of bark at 10 *d.* per lb. - - -	8,333
Actual cost to Government of alkaloids delivered in England -	8,067

against 12,800 rupees expended by Mr. Broughton.

4. Mr. Broughton replied—

1st. That red bark worth 1 *s.* 9 *d.* per lb. in London would produce nearly 7 per cent. of chinchona alkaloid under his process, and that bark containing 4 per cent. alkaloids would fetch only 1 *s.* per lb., or thereabout, in London.

2nd. That Dr. Simpson, in sub-dividing the quinine into crystalliizable and uncrystallizable, had made an excessive estimate of the proportion of uncrystallizable. The substitution of a more usual proportion would materially alter the figures of the result.

3rd. That the Nilgherry red bark was not worth 1 *s.* 9 *d.* per lb. in London to a manufacturer for the purpose of extracting the alkaloids therefrom, but for making decoctions and infusions, and that he much doubted whether 1 *s.* 9 *d.* per lb. could be obtained for such bark in very large quantity.

5. Dr. Simpson rejoined that he was justified in assuming 1 *s.* 9 *d.* per lb. as a price which may be realised for barks of 4 per cent., both on account of Mr. Howard's statement, that small twig bark was purchased for that sum the other day in the London market by the druggists, and because bark cannot be sent home on such a large scale as that contemplated by Mr. Broughton for some years to come. In addition to this, he knew for a fact that barks of a kind inferior to *chinchona succirubra*, and containing less alkaloid, did sell for even higher prices than this, for pharmaceutical purposes: *e. g.*, some short time ago a quantity of bark of *chinchona pahudiana*, from Java, was sold in Amsterdam for 2 *s.* 6 *d.* per lb., while their best *chinchona calisaya* bark fetched only 2 *s.* This *chinchona pahudiana* bark was supposed by Professor Miguel to be quite useless, and he actually advised the Dutch Government to root it up, as only fit for firewood.

6. Mr.

6. Mr. Clarke, in attempting to narrow the issue before the Commission, argued that if Mr. Broughton's process, as performed on 1,000 lbs. of wet bark, cost less than the transit of such bark to England, and obtained therefrom all, or very nearly all, the alkaloids, such process must be more advantageous than sending the bark to England for sale. Mr. Clarke referred to the statement prepared by Mr. Gammie of the cost of actually carrying out Mr. Broughton's process on 1,000 lbs. of wet bark, which appeared to be about 25 rupees, exclusive of the cost of European superintendence. There was some doubt as to how much should be allowed for the cost of European superintendence; but allowing a high estimate, it yet appeared that the total cost of extracting the alkaloids by Mr. Broughton's process was less than the cost of sending the bark to England. This line of argument included all classes of bark alike.

Mr. Broughton stated that he had no doubt but that his process did extract all the alkaloids present.

Dr. Simpson said that if he could feel perfectly sure of Mr. Gammie's calculation of the cost of manufacture under Mr. Broughton's process, he should incline to recommend that all the bark be worked up at Rungbee; but that so many items in the calculation were uncertain, he should, on the contrary, recommend that the greater part of the first class bark should be sent for sale to England.

The Commission generally agreed that too absolute confidence should not be attached to Mr. Gammie's calculation, particularly as Mr. Broughton's own estimate of cost (viz., 97-8 rupees for working 1,000 lbs. of wet bark) was so much higher.

Mr. Clarke pointed out that fuel was much cheaper at Rungbee than at Ootacamund, and that the possession of a Coffey fractional still at Rungbee would largely reduce the cost of the alcohol and the expense of recovering it.

It was finally agreed that it should be recommended that during the cold season, 1871-72, the bulk of the first class bark at Rungbee should be sent for sale to England, and that all the remainder of the bark should be worked up at Rungbee. By first class bark was to be understood stem bark of the character which had been found to command in London 1 *s.* 9 *d.* per lb., or more.

In arriving at this conclusion, the Commission regarded only the immediate interest of Government, and did not enter on the consideration of the interests of private growers of chinchona.

7. Mr. Broughton read to the Commission, from the Proceedings of the Government of Madras in the Revenue Department, the papers noted in the margin.

Government Order, No. 29, of 11th January 1871.
Minute of Proceedings, No. 87, of 7th February 1871
Government Order, No. 249, of 7th February 1871

8. The Commission considered the suggestion that it might be economically advantageous to extract by a single process all soluble matter from the bark, and send home the gross proceeds of the first precipitation.

The Commission were unanimously of opinion that this would not be advantageous, at least in the case of red bark, inasmuch as they did not consider any such preparation likely to prove acceptable in the home market.

Mr. Broughton remarked that if hereafter the Indian plantations should throw into the home market large quantities of bark of *chinchona calisaya* or *chinchona officinalis*, it would be found that the only use which the *chinchona succirubra* bark could be put to would be for working up for domestic Indian employ.

9. It was agreed that for the present it was not advisable to attempt the manufacture of the pure sulphate of quinine at Rungbee, because such a manufacture could only be carried out to economic advantage by the aid of very extensive machinery, and when bark shall be supplied in very large quantities.

10. The President called attention to the fact that the Medical Store Department was still indenting from Europe for red bark for making infusions and decoctions, and that the cost of the red bark was two rupees and upwards per pound.

Mr. Broughton remarked that the red bark from Rungbee would be found equal, if not superior, to that obtained from America, for the purpose of such infusions and decoctions.

It was agreed to recommend that all requisitions of the Bengal Medical Store Department for chinchona bark itself, should in future be indented for directly on the Rungbee plantations.

Monday, 20th March 1871.

1. The Commission met at the office of the Inspector General of Hospitals, Calcutta, at 2 p.m., the President being engaged during the morning on other Committee work.

2. The Secretary's draft record of the proceedings of the previous sitting was read, amended, and settled.

3. It had been agreed to recommend that a considerable portion at least of the bark should henceforth be worked up at Rungbee.

Dr. Simpson brought forward an alternative process which he believed would be found more economical than the process of Mr. Broughton now in operation, and would give a safer product of chinchona alkaloid than that given by Mr. Broughton's process.

Dr. Simpson detailed the steps of this process, and called attention particularly to their great number. (*Vide* Appendix E, containing Dr. Simpson's Minute on the Manufacture.) While admitting the ingenuity of this process, but insisting on its complication, Dr.

Simpson asked Mr. Broughton whether he was satisfied that strong alcohol would completely wash the alkaloid out of the lime precipitate, when the precipitate was coarsely (not finely) powdered, as is practised by Mr. Broughton to secure the more complete recovery of the alcohol and other working advantages.

Mr. Broughton said that he was perfectly satisfied on that point.

Dr. Simpson then laid before the Commission his plan for extracting the crude alkaloid from red bark. He proposed to infuse several times the fresh stripped bark in water acidulated with sulphuric acid, for several days; then to fractionally precipitate the infusion with soda, and obtain the alkaloids directly from the second half of the precipitation, with a little admixture of other substances. [This abstract is inserted here to maintain the connection of the record of proceedings. Dr. Simpson's full description is contained in Appendix E.]

Mr. Clarke stated, in reply to Dr. Simpson, that though fuel was cheap at Rungbee, he should estimate any practicable plan of proceeding by infusion as a very great improvement on working by decoction.

Mr. Broughton replied. [Mr. Broughton has drawn up a memorandum on Dr. Simpson's minute, which is appended in Appendix F.] Infusion, he said, succeeded well with *chinchona calisaya*, but would not with *chinchona succirubra* bark. He had tried it repeatedly, altogether on 2,000 lbs of bark, and that even working with far more acid than he used in decoction, he yet failed to extract from the bark by infusion more than one-half to two-thirds of the alkaloids present therein. Secondly, Mr. Broughton laid stress on the fact that by his process the alkaloids are obtained in a state of ascertained purity, whereas under the process recommended by Dr. Simpson the degree of purity of the product would require to be ascertained by analysis in each case.

Mr. Clarke remarked that the plan suggested by Dr. Simpson was identical with that struck out by Mr. Blanford in the experiments which he had made one year ago, but that Mr. Blanford had never succeeded in properly exhausting the alkaloids from red bark by infusion; neither did he generally obtain the alkaloids in a state of purity at the first precipitation.

NOTE added by *C. B. Clarke.*

I now consider that these experiments by Mr. Blandford prove little, because the red bark only reached him after having been taken off at least 20 days, and that to give a chance of success the bark needs to be infused quite fresh.

In reply to Dr. Simpson, Mr. Broughton stated that in his infusions he sliced his red bark, and Mr. Clarke stated that the bark had also been sliced by Mr. Blanford.

Dr. Simpson rejoined. He said that on a small scale (1 lb. of bark) he had proved his method, and had completely obtained the alkaloids from young Rungbee red bark by infusion alone. He had pounded thoroughly, not sliced the bark, and had used about 1½ per cent. of acid for each infusion; that after four infusions, averaging two days each, he found no alkaloids remaining in the bark.

Dr. Simpson added that he regarded the avoidance of boiling as of such high importance, that, even if one-fifth the alkaloid remained sacrificed in the bark by subjecting it to infusion only, he would still think this way of work deserving a most careful and extensive trial.

In reply to Mr. Broughton's second objection, Dr. Simpson remarked that he could ensure the sufficient purity of his product by slightly over-doing the first half of the fractional precipitation, and that he would perhaps work up the result of the first half of the precipitations by Mr. Broughton's cone process (or in some other way) to save the loss of alkaloid.

Mr. Broughton said that he feared in practice, on the large scale, it would be nearly as troublesome to pound bark as to boil it. He entirely dissented from Dr. Simpson's proposal to throw away one-fifth of the alkaloid in the bark; any such sacrifice condemned, in his opinion, the plan of operations that admitted it.

Dr. Simpson said that in lieu of pounding the fresh bark, he proposed to put the bark, after the first infusion, through Mr. Clarke's hydraulic press (which is intended to give a pressure of 500 lbs. to the inch), and he thought this would probably disintegrate the tissue of the bark, and thus completely obviate the necessity of pounding the raw bark.

Mr. Broughton then said that though he had not tried pounding the bark before infusion, but only slicing, he felt quite sure that this would cause no great difference.

Mr. Broughton then observed that he had some further reasons to give why he considered his own process better than the one suggested by Dr. Simpson. In his own process, though the different steps were numerous, they were none of them troublesome or difficult to perform sufficiently well to ensure a satisfactory result. The process dealt only, sulphuric acid excepted, with Indian materials.

Under Dr. Simpson's suggested process, supposing it to succeed in obtaining the alkaloids by mere infusion, the fractional precipitation would be a step of considerable delicacy, and if entrusted to a person uneducated in chemistry, there might be issued, as chinchona alkaloid, an impure product, or, on the other hand, enormous sacrifices of alkaloid might take place. Now, under the process now in operation at Rungbee, it was hardly conceivable that any serious blunder of this kind could occur.

Dr. Simpson replied that he entirely withheld his approval from the attempt to manufacture chinchona bark by paharia savages in charge of a gardener.

Dr. Simpson further observed that by the employment of alcohol in large quantities there was a risk of some terrible explosion occurring some day, and there was a perpetual risk of the paharias drinking the alcohol.

Mr. Broughton said that, with the excellent machinery at Rungbee, supplied by the Kidderpore

Kidderpore Dockyard, he thought the risk of an explosion very small indeed. He agreed with Dr. Simpson that the employment of a skilled chemist was necessary.

It was finally agreed that the replacing of decoction of red bark by infusion was a matter of extreme importance, and that no chance of success ought to be allowed to slip; that it should be recommended that the general manufacture of the bark at Rungbee next cold season should proceed by Mr. Broughton's process, but that some experiments by infusion should also be carried out, if possible; that, moreover, it was advisable that further experiments in working young Indian red bark by infusion should be made by a competent person.

4. Dr. Simpson had been for several days suffering from terai fever since his return from inspecting the chinchona plantations with the Commission. He was now unable to sit up to write, but he undertook to draw up a Minute setting forth his own views regarding the manufacture fully. It was arranged that this Minute should be handed to Mr. Broughton for his remarks, and the secretary was instructed to append these two papers to the report.

Dr. Simpson's Minute will be found in Appendix E, and Mr. Broughton's Memorandum thereon will be found in Appendix F.

5. The drawing up of the report of the Commission was commenced.

Tuesday, 21*st March* 1871.

1. The Commission met at the office of the Inspector General of Hospitals, Calcutta, at 10.30 a.m.

2. The secretary produced the draft of the report, up to the point where the subject of manufacture is considered. This draft was read and settled, clause by clause.

3. The suggestion of Government, that a valuable febrifuge can be readily extracted from the leaf of chinchona, was taken up.

Mr. Broughton referred to printed reports of his own, which showed that the leaves of *chinchona succirubra* contain, in total alkaloids, ·019 per cent. of their dry weight, and that the leaves of *chinchona officinalis* contain ·0111 per cent. of their dry weight. Mr. Broughton had not examined the leaves of *chinchona calisaya*, but presumed their yield would be about the same.

Dr. Simpson called attention to an analysis of Mr. Howard's, made in December 1863, of the leaves of red bark, in which Mr. Howard stated that he obtained 1·31 per cent. from them of a substance which had the appearance of a hydrated alkaloid, but of which ·17 was soluble in alcohol.

Vide page 30 of Parliamentary Return, East India Chinchona, 18th June 1866.

It was agreed, under these circumstances, that it could not be worth while to attempt, at Rungbee, to extract the alkaloid from the leaves.

Next, Dr. Simpson read a paper by Dr. De Vry, calling attention to the presence of quinovic acid in the leaves, and to its high medicinal value.

There was read a letter by Mr. Broughton, addressed to the Inspector General of Hospitals in Madras, dated 18th January 1870, and printed in the "Madras Monthly Journal of Medical Science."

Mr. Broughton stated that the quantity of quinovine (formerly called quinovic acid) on leaves of *chinchona succirubra* was from 1 to 2 per cent. of their dry weight. The quinovinates of lime and magnesia would be convenient forms for dispensing, and could be manufactured more easily than the chinchona alkaloid. Mr. Broughton showed that it is still contested whether the quinovinates have any febrifugal power, though their tonic effects are admitted. Full experiments regarding their therapeutic value are being carried out by the Madras Medical Department, from materials supplied by Mr. Broughton.

It was agreed that it be recommended that, pending the reception of the results of these investigations, no experiment in the manufacture of the quinovinates be embarked upon at Rungbee.

Thursday, 23*rd March* 1871.

1. The Commission met at the office of the Inspector General of Hospitals, Calcutta, at 3 p.m., the President having been unavoidably prevented holding a meeting in the morning.

2. The President suggested that the Commission should take into consideration the advisability of recommending some method for obtaining periodically, by tabular statement or otherwise, more exact statistics regarding the future progress and condition of the chinchona plantations.

A lengthened discussion ensued on the form in which such statistics should be drawn up, and it was agreed that the members should think over the most practical way of ensuring the proposed objects, and bring draft schemes on the following day.

3. The Secretary's draft record of the proceedings of the two preceding sittings of the Commission was gone through and settled.

4. Dr. Simpson, recurring to the method of manufacture devised by Mr. Broughton, called attention to the fact that the work took place by acid decoctions and alcoholic distillations in copper vessels. He asked Mr. Broughton if he had no fear that the ultimate resulting chinchona alkaloid might contain copper.

Mr. Broughton explained his grounds for thinking that it rarely would contain copper, and then only in small quantities. To prevent, however, all possible error in this important

portant matter, Mr. Broughton said he always tested, for copper, his liquor previous to the final precipitation. If copper was present, even in minute quantities, he got rid of it by precipitation with a little sulphide of sodium. In his experience in manufacture, however, he had only once found copper present in the alkaloid preparing to be sent to the medical stores.

Dr. Simpson called attention to the green colour of the chinchona alkaloid turned out at Rungbee.

Mr. Broughton said he had (at Ootacamund) analyzed a Rungbee sample of this appearance, and found that it contained no copper, but a small quantity of iron.

Dr. Simpson asked Mr. Broughton whether he considered that any process which had a risk of giving copper in the result ought to be entrusted to gardeners.

Mr. Broughton said, certainly not.

Dr. Simpson then stated that, having known for a considerable time that the chinchona alkaloid manufactured at Rungbee contained copper in large quantity, he made over a sample to the chemical examiner to Government for analysis, and now handed over to the President the chemical examiner's report, just received, which showed that this chinchona alkaloid contained 10·5 per cent. of metallic copper, equal to nearly 20 per cent. of impure carbonate, in which state it probably exists in the alkaloid.

Mr. Broughton replied that he had nothing to do with this; he knew that his own chinchona alkaloid turned out at the Nilgherries contained no copper. The occurrence of so serious a mistake made him still more strongly of opinion that the manufacture of chinchona bark should be superintended by a person instructed in chemistry. Mr. Broughton could hardly conceive how, by any blunder, such an amount of copper could have got into the product.

Friday, 24th March 1871.

1. The Commission met at 10 a.m., at the office of the Inspector General of Hospitals, Calcutta.

Appendix A, No. 11. 2. The evidence of Mr. Mann, Assistant Conservator of Forests in Upper Assam, was taken.

3. The President, Mr. Broughton, and Mr. Clarke, produced forms of schedules of statistics in future to be required from the Rungbee plantations. It was finally agreed to recommend a form slightly modified from that sketched by the President, Mr. Clarke dissenting on the grounds shown in his Minute appended in Appendix H.

4. The Draft Report concerning the manufacture was settled, and the whole Report finally worked through.

5. The Minutes of the Proceedings were worked through and finally revised.

6. The Commission were exceedingly desirous to bring their labours to a close, and had sat continuously till evening, but agreed not to meet till 4 p.m. on the following day, to give the Secretary time to prepare the fair copy of the Report.

Saturday, 25th March 1871.

1. The Commission met at 4 p.m., at the office of the Inspector General of Hospitals, Calcutta.

2. The form of the schedule referred to in paragraph 2 of the previous day's proceedings was further discussed, and the President finally undertook to draw up a note to be appended to the schedule (given in Appendix G.), to show more clearly how the form was intended to be worked.

3. The Secretary received instructions to prepare a final clause to be added to the Report.

Monday, 27th March 1871.

1. The Commission met at the office of the Inspector General of Hospitals, Calcutta, at 10.30 a.m.

2. The Report was signed.

3. The President declared the sittings of the Commission concluded.

Appendix (A).

Examination of Witnesses.

The questions put to the witnesses were framed with the sole object of eliciting the desired information in the most direct way, and some questions were put by individual members of the Commission as the examination proceeded.

No inference therefore must be drawn from the wording of the questions as to the opinion which the Commission accepted on any contested point.

APPENDIX (A.), No. 1.

Examination of Mr. *McIvor*, who has had the direction of the Government Chinchona Plantations in the Nilgherries from 1860 to the present time. (Taken 28th February 1871.)

1. ARE you of opinion that *chinchona succirubra* can be grown to any extent in British Sikkim?—It can be grown to any extent.

2. Are the plants of *chinchona succirubra* likely to attain the size of forest trees?—From the appearance of the plants, I do not think that they will form at Rungbee and Rishap a permanent forest plantation. The majority of the plants are now diseased, and thousands of them have already died of canker. As a rule, the plants have grown spendidly during the first two years, and, in places where the surface soil is deep, during the first three years. On patches of damp land they have not grown at all. The disease among the plants appears to me to be caused by the roots getting into a cold, damp subsoil.

Have you any of this canker on your plantations in the Nilgherries?—Yes, but to a very limited extent.

Then you consider the condition of the Nilgherry *C. succirubra* plantations to be more healthy than that of the plantations here?—Yes; certainly.

Is the average vertical growth during the first three years of the *C. succirubra* trees in Sikkim greater than in the Nilgherries?—A few exceptional plants have a much greater growth here in Sikkim than any in the Nilgherries, but the average growth at the Nilgherries is greater than in Sikkim even during the first three years.

What do you suppose to be the cause of the great growth of the few exceptional plants?—It appears to be due to their having been planted over pits that have been made by the natives in digging for the roots of wild yams, and that have been afterwards washed in with fine vegetable mould.

17. May a rapid increase in the supply of bark be looked for from existing plants?—No; I think the plantations would yield more bark now than ever they will hereafter. If this question refers to the plantation of from four to six years' growth, the greater quantity of bark will be produced by cutting them down now, because the disease is rapidly destroying the plants. My impression is that there are 1,00,000 plants of the age above mentioned which will die before the end of this year.

20. What do you consider the best means of drying the bark for export?—My limited experience leads me to suppose that the bark would be best dried as rapidly as possible in the sun.

I dried some bark in an oven, and some in the sun, taken from the same tree and of the same quality, which I sent to Mr. Howard, who found about a third more crystallisable alkaloid in the former than in the latter. I learn from Mr. Broughton that exposing the bark to too high a temperature renders the alkaloids uncrystallisable.

23. Should Government wish to extend the plantation, what species of chinchona will grow best?—It does not seem to be established which species will be the most profitable to grow. The red bark plant is the most luxuriant, both here and on the Nilgherries.

25. What are the merits of the adjoining plantation of the Darjeeling Chinchona Association at Pomong, as compared with those of the Government plantation?—The Pomong plantation appears to be in as good a condition as the Government plantation.

26. We learn that a large proportion of the trees of the Pomong plantation were cut down last year; do you think that the plantations are thereby rendered less valuable?—The plantations may be benefited by the cutting down, as all or nearly all the stumps appear to have been cankered. These stools are now throwing fine vigorous shoots, which promise to be free of canker for two or three years at least. If the canker is allowed to advance too far before the trees are cut down, they do not throw strong shoots from the stumps, and many of them die altogether.

30. Do you consider the canker to be spreading in the plantation?—The canker appears to me to be rapidly spreading. It is met with in all stages of development on the plants. Many plants which are now sickly must have been healthy three months ago. It appears to me that when the roots penetrate the cold subsoil, canker makes its appearance, and the tree subsequently makes no healthy growth.

30.* Can you give more fully your reasons for believing that the canker is now spreading in the plantations?—I judge from the fact that the young trees are healthy, that the trees of from four to seven years' growth must have been healthy in the early stages of growth; from the fact that where the subsoil is near the surface, the canker sets in and destroys plants long before those on a deeper surface soil are affected; from the fact that the roots in the lower subsoil are decayed at their points, while the roots in the upper soil are still fresh and vigorous.

30.** You have stated that during the first two or three years the plants are healthy and grow vigorously; do you not consider it possible that the canker in the older plants may be due to the fact of over-propagation in the first instance?—It appears to me that the canker arises from the roots entering the cold subsoil.

31. Can you suggest any remedy for the state of canker?—It is difficult to apply a remedy to canker, because the cause generally lies in the soil. Deep cultivation, large pits filled in with surface soil, and deep draining, might have a good effect, but would not in any way tend to make the cultivation profitable. This canker also exists in Java, and in

the plant in the natural forests of South America, where seedlings which germinate in low, damp places generally die out in the third or fourth year.

31.* Do you consider that what you have said respecting *C. succirubra* applies to *C. calisaya* also?—In every respect, so far as I can judge from so small a number of plants.

APPENDIX (A.), No. 2.

Re-examination of Mr. *McIvor*, immediately after the Commission had been accompanied by him through the Plantation. (Taken 4th March 1871.)

You stated in your reply to Question 17, *supra*, that your impression was that 1,00,000 plants of from four to six years' growth would die before the end of this year; what do you mean by a plant of four years' growth?—I meant a plant that had entered on its fourth season of growth.

Are we to understand, from what you have said, that you consider the soil and climate of British Sikkim to be unsuited to the growth of *C., succirubra* and *C. calisaya*?—It is rather difficult for me to say. My impression is that a better soil would have produced better and finer plants. As for the climate, I have no knowledge of it. Sikkim is, however, beyond the tropic, and I believe that in South America chinchona is not found without the tropics; but I consider this is no reason that the plants may not do well, provided the subsoil is open and dry.

APPENDIX (A.), No. 3.

Examination of Mr. *Gammie*, who has been in charge of the Government Chinchona Plantations as Head Gardener, since January 1866. (Taken 28th February 1871.)

1. ARE you of opinion that *chinchona succirubra* can be grown to any extent in British Sikkim?—I am of opinion that it can be grown to any extent.

2. Are the plants of *chinchona succirubra* likely to attain the size of forest trees?—Yes.

3. Can they be grown at little cost?—Yes.

4. Can they be grown with a certainty of future revenue?—I reserve my opinion on this point.

5. Why do you reserve your opinion on this point?—Because I am doubtful of the bark retaining its present price.

6. Why do you conclude that they can be grown to any extent and at little cost?—Because labour is cheap and the land is easily cleared, and plants are produced cheaply.

7. Do you think that disease exists among the *C. succirubra* plants; and if so, to what extent?—Yes, disease exists in some part of the plantations and not in others.

8. What is the disease?—Canker.

9. Have not a number of plants already died?—No, not one in a thousand has died yet of canker; but plants have died out in considerable quantities from bad drainage.

10. There is a marked difference in the growth of the trees; to what do you ascribe this?—To difference in soil.

11. You are aware, I suppose, that natives dig for yams in these parts, leaving large holes open; have many trees been planted in such holes filled up with good earth, and do you think that this may account for the difference alluded to?—Natives have dug for yams, but this occasions no difference in the plants. The yam-pits are rare; there are frequently ten acres without a yam-pit.

12. What depth are the yam-pits?—From two to five feet.

13. The vertical growth of the trees is great during the first three years; is this rate of growth, as in the second and third, subsequently maintained?—Yes; trees of five years' growth have grown as well in the fourth and fifth year as in the second and third.

14. What is the cause of the canker in the plant?—I attribute it to hard propagation, so that the stock got weakened. It may be partly due to cold soil, so that the plants got weakened.

15. What do you mean by a cold soil?—A soil that retains the moisture.

16. Do you consider cold soil exceptional, or is it general over the plantation?—I consider it exceptional.

17. May a rapid increase in the supply of bark be looked for from existing plants?—Yes.

18. How many plants were planted out by the end of 1866?—Thirty-one thousand three hundred and eighty-seven.

19. Within what period do you expect the cankered plants to die?—They will not die. If a tree be affected with canker, and the top be cut away, it will shoot out again and become a forest tree.

20. What do you consider the best means of drying the bark for export?—The only way I have done it is to dry it in the air, and then finish over charcoal.

21. What is the cost of drying and packing 1,000 lbs.?—About 50 rupees.

22. Would packing in gunny bags be cheaper than in boxes?—I do not know the price of gunny bags.

23. Should Government wish to extend the plantations, what species of chinchona will grow best?—*Chinchona succirubra*; it is the hardiest plant, and wil grow anywhere. *C. calisaya* requires its site selected.

24. Do you know the adjoining plantation of the Darjeeling Chinchona Association at Pomong?—Yes.

25. What

25. What are the merits of that plantation as compared with those of the Government plantations?—Equal, as they stand.

26. We learn that a large proportion of the trees of the Pomong plantation were cut down last year; do you think that the plantations are thereby rendered less valuable?—Yes; for the present.

27. Do you think it would be advisable to cut the Government plantations more severely than heretofore?—At the end of four years every plant not likely to make a good tree should be cut down.

28. What do you mean by a plant that is not likely to make a good tree?—Every tree which is cankered, or hide-bound, or stunted, or wants a leader.

29. Do you consider a cankered tree and a hide-bound tree in different stages of the same disease?—No.

30. Do you consider the canker to be spreading in the plantation?—Certainly not. It is diminishing, because we have got a healthier stock.

31. Can you suggest any remedy for the state of canker?—Cut them down.

32. Would cutting down all the cankered trees leave enough standing to form a forest?—Over nine-tenths of the plantation, it would.

33. Do you consider the canker a consequence of planting in wet places?—No.

34. Do you consider *chinchona calisaya* to be more liable to disease than *chinchona succirubra*?—I have not sufficient experience.

35. From the experience you have had, do you consider the plants of *chinchona calisaya* promising?—Yes; in well-selected places.

36. What are the conditions which you consider necessary for the growth of *chinchona calisaya*?—An altitude not exceeding 3,000 feet, a moist and shady situation, and good soil.

37. You have stated that the Pomong plantation has been rendered less valuable for the present; do you consider that it will become more valuable hereafter; and if so, why?—Yes; because I believe the shoots from the stools of the plants that have been cut down will make better trees than the original plants would have done.

Appendix (A.), No. 4.

Re-examination of Mr. *Gammie*. (Taken 6th March 1871.)

38. You were present when Mr. McIvor pointed out to the commission the existence of canker both in the young and in older plants of *C. succirubra* and explained his views concerning it; has your opinion regarding the permanence of the plantation been thereby modified?—No; my opinion is the same as before, because in the earlier planting of 1864 and 1866 the disease, if it is to be called a disease, was much worse than it is now.

Appendix (A.), No. 5.

Examination of Mr. *Kennedy*, who has been Second Gardener on the Government Chinchona Plantation since February, 1867. (Taken 2nd March 1871.)

1. Are you of opinion that *chinchona succirubra* can be grown to any extent in British Sikkim?—Yes; I think so.

2. Are the plants of *chinchona succirubra* likely to attain the size of forest trees?—Yes.

3. Can they be grown at little cost?—Yes.

4. Can they be grown with a certainty of future revenue?—I think they ought to give a good revenue.

6. Why do you conclude that they can be grown to any extent and at little cost?—Because the other slopes in the neighbourhood are as good as those at Rishap, and when the plants grow up they will require comparatively little labour.

7. Do you think that disease exists among the *chinchona succirubra* plants; and if so, to what extent?—Yes, some of them are diseased; about one-eighth.

8. What is the disease?—Canker.

9. Have not a number of plants already died?—Yes, about 4 per cent. of the first 100 acres I planted have already died. They have not all died of canker. Some have died of damp subsoil.

10. There is a marked difference in the growth of trees; to what do you ascribe this?—To difference in soil.

11. You are aware, I suppose, that natives dig for yams in these parts, leaving large holes open; have many trees been planted in such holes filled up with good earth; and do you think that this may account for the difference alluded to; I know that the natives have dug for yams. I have only seen one chinchona plant put in a yam hole.

13. The vertical growth of the trees is great during the first three years; is this rate of growth subsequently maintained?—Yes.

14. What is the cause of the canker in the plant?—Hard propagation may have something to do with it.

14.** Do you not consider it possible that a wet subsoil might induce canker in a healthy seedling?—It might, but such a subsoil would never grow a healthy plant, though it might not cause canker.

16. Do you consider cold soil exceptional, or is it general over the plantation?—I consider it exceptional.

17. May a rapid increase in the supply of bark be looked for from existing plants?—I do not think any increase in the supply must be expected next year. The year after that it will be very considerable. I do not see why it should not continue to increase afterwards.

17.* Why will not the yield of bark be increased next year?—Because there was no such large amount planted in 1868, and a number of vacancies occurred which were not filled up immediately.

19. Within what period do you expect the cankered plants to die?—I cannot say that I have ever seen them die of canker only in good soil. Cankered plants will die above the canker, but will spring up again from the roots, and this second growth may become a tree.

20. What do you consider the best means of drying the bark for export?—In the sun, or else under sheds so arranged that the air may pass freely through. It will then get perfectly dry in the months of October, November, February, March, and April.

23. Should Government wish to extend the plantations, what species of chinchona will grow best?—*Chinchona succirubra*, because it is more easily propagated than *C. calisaya*; but when once planted out, I do not think *C. calisaya* will be more troublesome.

24. Do you know the adjoining plantation of the Darjeeling Chinchona Association at Pomong?—Yes.

25. What are the merits of that plantation as compared with those of the Government plantation?—There is little difference between them.

26. We learn that a large proportion of the trees of the Pomong plantation were cut down last year; do you think that the plantations were thereby rendered less valuable?—No, I think they were benefited, for a number of the trees cut down were cankered, and the shoots springing from the stools are quite healthy.

27. Do you think it would be advisable to cut the Government plantations more severely than heretofore?—No, I would only cut cankered trees. There is no need to cut healthy trees.

29. Do you consider a cankered tree and a hide-bound tree in different stages of the same disease?—No.

29*. Are you acquainted with the plan of slitting up the bark of a hide-bound tree?—Yes, I approve of it.

30. Do you consider the canker to be spreading on the plantation?—It is not decreasing, at any rate.

30*. Are we to conclude, therefore, that it is increasing?—No; I think it is about the same.

In the first year that I was here, I do not think that I observed canker at all in the plantation. The second year it made its appearance, and the third year it got worse. The fourth year it has not increased.

31. Can you suggest any remedy for the state of canker?—No.

32. Would cutting down all the cankered trees leave enough standing to form a forest?—Yes, I think so.

33. Do you consider the canker a consequence of planting in wet places?—No.

34. Do you consider *Chinchona calisaya* to be more liable to disease than *C. succirubra*?—No.

35. From the experience you have had, do you consider the plants of *Chinchona calisaya* promising?—Yes.

36. What are the conditions which you consider necessary for the growth of *C. calisaya*?—The same as for the growth of *C. succirubra*.

42. Of the plants of 1866 planting, how many have died?—There were about 25,000 standing of previous years' planting when I came here in 1867; of these about 2,500 have died. About half of the trees have been cut. They have died out in patches.

43. You say there were about 25,000 trees in permanent plantation when you first came here in 1867, of which about half have been cut, and about 2,500 are dead. Some 10,000 plants will remain, of these what percentage do you expect will die in the course of the next three years?—About 3 per cent.

APPENDIX (A.) No. 6.

Examination of Mr. *Jaffrey*, the Third Gardener, who has been in the Government Chinchona Plantations since 1862. Taken 2nd March 1871.

1. ARE you of opinion that *Chinchona succirubra* can be grown to any extent in British Sikkim?—Certainly.

2. Are the plants of *Chinchona succirubra* likely to attain the size of forest trees?—I believe they can be grown into forest trees.

3. Can they be grown at little cost?—I cannot speak as to cost.

4. Can they be grown with a certainty of future revenue?—I think it ought to yield a large revenue.

7. Do you think that disease exists among the *Chinchona succirubra* plants; and, if so, to what extent?—Yes; they are diseased to a considerable extent. The disease does not exceed 20 per cent.

8. What is the disease?—Canker.

9. Have

9. Have not a number of plants already died?—Very few.

10. There is a marked difference in the growth of the trees; to what do you ascribe this?—To portions of land that have not been so severely cultivated by squatters. The bamboo jungle has never been cultivated, and on this the trees are luxuriant.

11. You are aware, I suppose, that natives dig for yams in these parts, leaving large holes open; have any trees been planted in such holes filled up with good earth, and do you think that this may account for the difference alluded to?—No; it has nothing whatever to do with it.

13. The vertical growth of the trees is great during the first three years; is this rate of growth subsequently maintained?—Very nearly.

14. What is the cause of the canker in the plant?—Moisture, I believe, and bad ventilation.

14*. You had charge of the plants at Lebong, in 1863, before any were planted out from the nursery, the canker then appeared; to what do you attribute this?—To moisture and over-propagation.

14**. Do you not consider it possible that wet subsoil might induce canker in a healthy seedling?—Yes.

16. Do you consider cold soil exceptional, or is it general over the plantation?—It is exceptional.

17. May a rapid increase in the supply of bark be looked for from existing plants?—Yes.

19. Within what period do you expect the cankered plants to die?—They must be cut to the ground, and then they will live. If a branch only is cankered, the branch only need be cut.

20. What do you consider the best means of drying the bark for export?—I cannot give an opinion.

23. Should Government wish to extend the plantations, what species of chinchona will grow best?—*Chinchona succirubra* and *C. calisaya*. What *C. pitayensis* will be, I do not know.

24. Do you know the adjoining plantation of the Darjeeling Chinchona Association at Pomong?—Yes.

25. What are the merits of that plantation as compared with those of the Government plantations?—Nearly equal; the Government plantations being the better in general appearance. This is to be attributed to aspect.

26. We learn that a large proportion of the trees of the Pomong plantation were cut down last year; do you think that the plantations are thereby rendered less valuable?—No, I do not; the growth is rapid from the stools, and superior to the original growth.

27. Do you think it would be advisable to cut the Government plantations more severely than heretofore?—Yes.

29. Do you consider a cankered tree and a hide-bound tree in different stages of the same disease?—They are decidedly different diseases.

30. Do you consider the canker to be spreading in the plantations?—I consider it to be diminishing. Formerly we had it everywhere, both in the nursery stock and in the cuttings.

30*. You stated that, in your opinion, canker was caused by moisture and bad ventilation; these causes remain in operation now as before: to what, then, do you attribute the diminution of the canker?—To a change in the manner of propagation by treating the young cuttings in a more hardy manner, and not under glass.

34. Do you consider *Chinchona calisaya* to be more liable to disease than *C. succirubra*?—No, it is less liable, being a less soft plant than *C. succirubra*.

35. From the experience you have had, do you consider the plants of *Chinchona calisaya* promising?—Yes.

35*. Are the plants of *Chinchona calisaya* likely to die?—A few exceptional plants may die.

39. Supposing that you were to take a plant indigenous to the soil and propagate it by seedlings and cuttings, and plant it six by six over the Rungbee valley, would you expect it to be more uniform than *C. succirubra*?—No.

44. Of the older plants now growing on Rungbee, what proportion do you expect may die from canker and other causes within the next three years?—I do not believe that any except a few tops will die.

Appendix (A.) No. 7.

Examination of Mr. *Biermann*, who came as a Gardener to the Rungbee Plantation in the spring of 1865, then had charge of the Government Chinchona Plantations in the Khasi Hills from February 1867 to August 1870, and since then has been re-transferred to Rungbee, in charge of the Manufactory. Taken 3rd March 1871.

1. Are you of opinion that *Chinchona succirubra* can be grown to any extent in British Sikkim?—Yes.

2. Are the plants of *Chinchona succirubra* likely to attain the size of forest trees?—Yes.

3. Can they be grown at little cost?—I prefer to say nothing about the cost.

4. Can they be grown with a certainty of future revenue?—The revenue will depend upon circumstances.

7. Do you think that disease exists among the *chinchona succirubra* plants; and, if so, to what extent?—Yes; some plants are diseased. I cannot state what proportion, because I have not lately been working in the plantations.

9. Have not a number of plants already died?—Yes; I have no idea of the number.

10. There is a marked difference in the growth of the trees; to what do you ascribe this?—To the nature of the ground.

11. You are aware, I suppose, that the natives dig for yams in these parts, leaving large holes open; have many trees been planted in such holes, filled up with good earth, and do you think that this may account for the difference alluded to?—Yes; such yam holes are dug, and an exceptional chinchona tree may be affected, but one may walk a mile over the ground not planted and not see a yam hole.

13. The vertical growth of the trees is great during the first three years; is this rate of growth subsequently maintained?—The rate of growth may diminish; the subsequent rate of growth may be a little less than during the first three years.

14. What is the cause of canker in the plant?—Excess of moisture both in atmosphere and in the soil.

16. Do you consider cold soil exceptional, or is it general over the plantation?—It depends on the slope of the ground and the nature of the soil.

17. May a rapid increase in the supply of bark be looked for from existing plants?—Yes; because the growth is good, and in the older trees the bark increases in thickness.

19. Within what period do you expect the cankered plants to die?—If badly affected they may die quickly; if not so, they may recover. I have seen cankered plants take on healthy bark.

23. Should Government wish to extend the plantations, what species of chinchona will grow best?—*C. succirubra*, without doubt, because it is a rapidly growing tree. I have, however, not had much experience of *C. calisaya*.

24. Do you know the adjoining plantation of the Darjeeling Chinchona Association at Pomgong?—Yes.

25. What are the merits of that plantation as compared with those of the Government plantations?—Just equal. I can perceive no difference.

26. We learn that a large proportion of the trees of the Pomong plantation were cut down last year; do you think that the plantations are thereby rendered less valuable?—It cannot make much difference, since, from what I have seen in those places where the trees have been cut, there are enough left to cover the ground within a short time.

27. Do you think it would be advisable to cut the Government plantations more severely than heretofore?—No, the present cutting is now sufficient.

29. Do you consider a cankered tree and a hide-bound tree in different stages of the same disease?—No; I think they are different diseases. I do not think the disease seen in the chinchona trees is the same as that known as canker in Europe, but I am not sure on this point.

30. Do you consider the canker to be spreading in the plantation?—No, I do not. I consider it to be diminishing.

In 1865, about 380 plants had been planted out in permanent plantation, and I was told that these were all unhealthy when put out the preceding year. After the rains, 60 died at one time, and more died shortly afterwards; some recovered. If this rate of death had continued, 75 per cent. of these plants would now be missing, whereas I have now examined closely, and find 236 alive.

If the canker had been equally fatal in succeeding years in other parts of the plantation as it was in 1865, the plantations would show gaps even if the vacancies had been filled up.

31. Can you suggest any remedy for the state of canker?—No; but I would cut cankered trees down below the cankered spots, and I would avoid planting where there is no natural drainage.

Of the older plants now in the plantations, few, if any, will die where there is drainage; where there is no drainage, more will die.

31.* Do you consider the natural drainage of the plantation to be good or bad, speaking generally?—Good, as a whole.

39. Supposing that you were to take a plant indigenous to the soil, and propagate it by seedlings and cuttings, and plant it six by six over the Rungbee valley, would you expect it to be more uniform than *C. succirubra*?—No, I should not.

Appendix (A.) No. 8.

Examination of Mr. *Spicer*, the Fourth Gardener on the Government Chinchona Plantations, who has been continuously employed there since July 1865.—(Taken, 3rd March 1871.)

1. Are you of opinion that *chinchona succirubra* can be grown to any extent in British Sikkim?—Yes.

2. Can the plants of *chinchona succirubra* be grown at little cost?—Yes; and at a very much less cost than heretofore.

7. Do you think that disease exists among the *chinchona succirubra* plants; and, if so, to

to what extent?—Yes; there is one or two here and there cankered; about two or three per cent.

9. Have not a number of plants already died?—One or two here and there have died, but there are few vacancies.

10. There is a marked difference in the growth of the trees; to what do you attribute this?—To difference of soil.

11. You are aware, I suppose, that natives dig for yams in these parts, leaving large holes open; have many trees been planted in such holes, filled up with good earth, and do you think that this may account for the difference alluded to?—There are lots of yam holes, but this does not account for the difference in the growth of the trees.

13. The vertical growth of the trees is great during the first three years; is this rate of growth subsequently maintained?—Yes.

14. What is the cause of the canker in the plant?—Harsh and gravelly soil.

16. Do you consider the harsh soil exceptional, or is it general over the plantation?—It is not general.

17. May a rapid increase in the supply of bark be looked for from existing plants?—Yes, certainly.

30. Do you consider the canker to be spreading in the plantation?—No.

30*. Must a plant which is cankered die?—Some die, some live.

Appendix (A.) No. 9.

Examination of Mr. *Munro*, who has been in charge of the Chinchona Plantations of the Darjeeling Association at Pomong, as Head Gardener, since December 1863; had 15 years' experience as a Gardener and Forester in Europe, and was trained three-and-a-half years in the Edinburgh Botantic Garden.—(Taken, 6th March 1871.)

1. Are you of opinion that *chinchona succirubra* can be grown to any extent in British Sikkim?—Yes, decidedly.

2. Are the plants of *chinchona succirubra* likely to attain the size of forest trees?—I expect them to grow to the height of 30 feet at least. I do not see why they should not grow as high as in their native land, when we grow them from seedlings; but my present plantation of 5,00,000 have been raised by cuttings from 92 plants, and we hardly expect forest trees raised by cuttings to grow to a large size. By the rapid propagation at first here practised, the constitution of the plants was weakened.

3. Can they be grown at little cost?—Yes, they can be grown at very little cost. We merely make a hole in the ground, and stick a plant in.

4. Can they be grown with a certainty of future revenue?—At present prices it can be grown to a profit.

7. Do you think that disease exists among the *C. succirubra* plants; and if so, to what extent?—There is no disease whatever except canker, which is hardly worth calling a disease.

In former years planting it was heavy, say 5 per cent., or more in the 1866 planting; in later years planting, it is much lighter, say, 1 per cent., in the 1869 planting.

9. Have not a number of plants already died?—I cannot say that any have died of canker only; some may have been broken across by canker very low down, but generally they have thrown fresh healthy shoots from the root.

10. There is a marked difference in the growth of the trees; to what do you attribute this?—To some plants being stronger in constitution than others when planted, and to some plants getting into better soil than others.

11. You are aware, I suppose, that natives dig for yams in these parts, leaving large holes open; have many trees been planted in such holes filled up with good earth, and do you think this may account for the difference alluded to?—Yes, there are yam holes, but we do not fill them up, nor do we plant in them.

If a plant got into a yam hole filled up with good earth, it would very probably grow well; but not one plant in a hundred can be so situated.

13. The vertical growth of the trees is great during the first three years; is this rate of growth subsequently maintained?—As far as I have seen, the rate of growth is maintained.

14. What is the cause of the canker in the plant?—Hard propagation; the canker is helped on if the plant gets into poor soil, or into a place where the water stagnates. Numbers of plants die out from wet soil, but this has nothing to do with canker, from which such plants may be quite free.

16. Do you consider the wet soil to be exceptional, or is it general in the Rungbee valley?—A wet subsoil is exceptional, the drainage is in general good.

17. May a rapid increase in the supply of bark be looked for from existing plants?—Yes, most decidedly.

19. Within what period do you expect the cankered plants to die?—I do not expect the cankered plants to die. I cut them over, and generally obtain healthy shoots.

20. What do you consider the best means of drying the bark for export?—We are drying our bark under sheds and finishing over charcoal.

21. What is the cost of drying and packing 1,000 lb.?—Roughly, 26 rupees; that is, exclusively

exclusively of taking the bark off the trees, which costs nearly as much more. (A note subsequently given the secretary by Mr. Munro.)

22. Would packing in gunny bags be cheaper than packing in boxes?—I do not know the price of gunny, but I should think it would be cheaper.

23. Should it be wished to extend the plantations, which species of chinchona will grow best?—*C. succirubra.* I have very little experience of *C. calisaya*, but so far as I have seen it in the Government plantations, *C. calisaya* may do as well as *C. succirubra.*

29. Do you consider a cankered tree and a hide-bound tree in different stages of the same disease?—No.

31. Can you suggest any remedy for that state of canker?—Cut them down and get young shoots from the stools.

34. Do you consider *Chinchona calisaya* to be more liable to disease than *Chinchona succirubra*?—No; so far as I have seen I have little experience of *C. calisaya.*

39. Supposing that you were to take a plant indigenous to the soil and propagate it by seedlings and cuttings, and plant it six by six over the Rungbee valley, would you expect it to be more uniform than *C. succirubra*?—No, you have only to look in the jungle and you will see that any trees, as the *chelonis*, will grow in one class of situation and avoid another, as the soft places.

40. Do you see a difference between your plants from cuttings and those from seeds in growth and healthy appearance?—No.

41. You have stated you have canker; is it among the plants raised from cuttings only, or is it also among those raised from seed?—Among both.

I raised, two years ago, a large quantity of plants from Ceylon seed; these are now nearly free from canker.

Our own seedlings were mostly raised from seed of cankered trees, and they also exhibit canker, but the seedlings which I am now raising from seed of sound trees I expect to exhibit little canker. From the state of cuttings which I have received from Ceylon, I infer that, in Ceylon, they were propagating much less severely than we do.

We received our first cuttings from the Neilgherries, and these were extensively affected with canker.

Appendix (A.) No. 10.

Examination of Mr. *Scott*, Curator of the Calcutta Botanic Garden; taken 17th March 1871.

You have been educated as a Horticulturist, where?—At the Botanic Gardens, Edinburgh, under Dr. Balfour and Mr. M'Nab.

You have, we understand, conducted many important and delicate investigations in vegetable physiology; can you particularise any of these?—My investigations have principally been in structural anatomical investigations of the higher cryptogams.

I have also carried out a number of biological experiments for Mr. Darwin; my papers describing the detailed results of these are printed partly in the publications of the Linnæan Society of London, partly in those of the Edinburgh Botanic Society.

When were you put in charge of the chinchona plants at Rungbee?—In January 1865.

How long did you retain charge?—Till May 1865.

Was there any disease at that time among the chinchona plants?—Yes; I observed a disease in the bark. It was not very prevalent, but I occasionally observed it. It was exhibited not only in the plantation, but also in the pot-culture, and in the nursery beds.

What was the nature of that disease?—It first presented itself as a discolouration of the bark and a softening of the cellular tissue; a communication of it inwards, discolouring the wood opposite, ensued.

So far as the process extended, the tissues and the wood had their vitality completely destroyed.

Did you examine closely the diseased plants?—Very closely, and the items most particularly.

What conclusions did you come to concerning the cause of this disease?—The cause appeared to me to lie in the atmosphere rather than in the soil. I noticed that the disease broke out especially after several days' continued rain, and seemed to me caused by a saturated state of the atmosphere inducing suppressed transpiration and a local decomposition of the sap. Then follows a transfusion of the diseased juices into the adjoining parts of the wood. The disease is intensified by a moist state of the soil; but, in my opinion, does not originally proceed from the soil.

Have you visited the Sikkim chinchona plantations since 1865?—It was in 1866 and again in 1868, for three weeks or a month on each occasion.

You may have heard that doubts have been raised whether *Chinchona succirubra* will grow into a forest in Sikkim; are you able to offer any opinion on this point?—So far as I have had opportunity of observation, I see no reason to doubt that it will. I think the disease will gradually disappear as the plantation gets thinned.

10. There is a marked difference in the growth of the trees; to what do you ascribe this?—To the circumstances of the soil.

16. Do you consider cold soil exceptional, or is it general over the plantation?—Exceptional.

29. Do you consider a cankered tree and a hide-bound tree in different stages of the same disease?—Certainly not.

29*. Is there more than one form of disease among the chinchona plants?—The above is the only form of disease that I observed as sufficiently common to merit attention.

31. Can you suggest any remedy for the state of canker?—I do not consider the disease which I have been describing to be canker at all. Canker arises from a wet subsoil, and may be cured by removing the cause.

Canker proceeds from the root; the disease in the chinchona plant proceeds from the eaves. The early stage of the disease in the chinchona plants in nowise resembles canker. It first appears as a minute patch on the bark, as if a drop of nitric acid had been placed on the plant at that point.

Do you consider that a chinchona tree diseased as above described must die?—When the disease extends circularly round the stem, the portion above the diseased ring must die, not the portion below; when the disease spreads longitudinally, the plant may heal up.

34. Do you consider *Chinchona calisaya* to be more liable to disease than *Chinchona succirubra*?—So far as my experience goes, *Chinchona succirubra* is the more liable to disease; but there was very little *Chinchona calisaya* at Rungbee when I last visited there.

39. Supposing that you were to take a plant indigenous to the soil, and propagate it by seedlings and cuttings, and plant it six by six over the Rungbee valley, would you expect it to be more uniform than *Chinchona succirubra*?—I do not think that any plant would stand uniformly over such a place. Some of the ground planted in 1868 was mere marsh.

It has been suggested that the disease in the chinchona plant has been induced by over-propagation; do you at all admit this view?—Severe propagation will weaken the stock, but the cuttings even from weakened stock plants, if placed under favourable circumstances, will be as vigorous as the direct progeny of seeds.

In taking cuttings, would you willingly propagate from a cankered stock plant?—As readily as from a healthy plant, provided I could find a healthy shoot to make a cutting of. I look on this disease as entirely a local affection.

Appendix (A.) No. 11.

Examination of Mr. *Mann*, Assistant Conservator in the Bengal Forest Department. (Taken 25th March 1871.)

Were you educated as a Gardener?—I was educated as a Gardener in Brunswick, and subsequently in many places; all over the continent of Europe, indeed.

Did you come out to India to take charge of the chinchona plantations, and at what date?—I came out in April 1864, and I went up to Sikkim. The chinchona plants were then mainly at Lebong, whither they had been removed from Sinchul. When I arrived, Rungyroong was the nursery. Rungbee was totally uncleared, and during that summer we made a commencement of clearing and planting at Rungbee.

How long did you retain charge of the chinchona?—Until Mr. Gammie came out, in 1866. I remained in British Sikkim as a forest officer up to November 1868, and during such time frequently had opportunities of visiting the chinchona plantation.

Was there any disease among the chinchona plants in 1864?—Yes.

What was the nature of that disease?—A disease in the bark, and it formed furrows in the bark up and down the stem; not round patches. The disease I should hardly call canker; it is a stoppage of the sap only. The disease in the bark of chinchona I have frequently seen to heal up.

Did you examine closely the diseased plants?—At that time frequently.

What conclusions did you come to concerning the cause of this disease?—Pressure of propagation; the exceeding artificial rapidity with which the plants were multiplied. More particularly, I attribute the disease to the treatment under propagation. We forced the young plants in frames very hard, and planted them out suddenly.

You may have heard that doubts have been raised whether *chinchona succirubra* will grow into a forest in Sikkim; are you able to offer any opinion on this point?—Forest is a vague term; they seem to be forest now. If by forest is understood trees of 30 to 40 feet, I think they will quite grow up to that.

10. There is a marked difference in the growth of the trees; to what do you attribute this?—The same difference is always observed in plantations on a large scale as in our forest operations. In gardens sufficient attention may be paid to each plant, but in planting large areas, the coolies cannot be superintended in planting each plant; one young plant may have the earth torn from the root or allowed to drop before planting, and it may never overtake its neighbours.

No care could make up for deficiency in soil; that will show itself very rapidly. Aspect and elevation, too, tells very remarkably on chinchona.

16. Do you consider cold soil exceptional, or is it general over the plantation?—It is not general, but it is more common in Rishap than in Rungbee.

29.* Is there more than one form of disease among the chinchona plants?—No, only one; I never observed the disease to spread circularly round the stem.

39. Supposing that you were to take a plant indigenous to the soil and propagate it by seedlings and cuttings, and plant it six by six over the Rungbee valley, would you expect it to be more uniform than *C. succirubra*?—No, or very slightly so; but some plants have a very wide range in nature; are universal plants.

In taking cuttings, would you willingly propagate from a diseased stock plant?—If I could get a good cutting from an unsound plant, I imagine it might produce a sound tree; but I should decidedly select my cuttings from the soundest plants.

You planted out, we understand, with your own hands the plants that were planted out in 1864; how many were then planted out?—It may be seen exactly in the records.

Do you recollect the state of those plants when planted?—Ten per cent., perhaps, were old exhausted stock plants from the Neilgherries, 90 per cent. were healthy cuttings of our own propagation.

Did many of those plants die in the first two years?—Not very many, I think; but I believe it is not improbable that the whole of the exhausted plants died.

When I last visited the Sikkim plantation in 1868, it was my opinion, as was then Dr. J. Anderson's, that the condition of the plantations had generally improved. I am positive that the percentage of diseased plants had greatly diminished. We had then got very much stronger stock plants.

I do not at all believe that the disease is caused by external conditions.

Appendix B.

Statement of Expenditure in Collecting, Carrying, and Manufacturing One Thousand Pounds of Succirubra Twig Bark (wet).

	Rs.	*a.*	*p.*
40 women collecting bark, at 3 annas 1 pie per working day.	7	11	4
Carriage of bark, at 4 annas per maund - - - - -	3	2	–
Coolie labour for boiling, pressing, precipitating, and filtering.	3	8	–
Lime - - - - - - - - - - - -	–	12	–
Drying and grinding precipitate - - - - - -	–	8	8
Working cone, and charcoal for ditto - - - - -	1	4	–
Recovering alcohol - - - - - - - - -	–	8	–
Loss of alcohol - - - - - - - - - -	1	4	–
Filters, gum, bladder, &c., and drying and pounding the alkaloids.	–	12	–
Total - - - - *Rs.*	19	6	–

To the above amount required to be added cost of 7½ lbs. sulphuric acid, 2 lbs. hydrochloric acid, interest on cost of machinery, and European superintendence.

Average yield of alkaloids from 1,000 lbs. of wet bark - - 15 ozs.

Rungbee, 6 March 1871. *J. Gammie.*

Appendix C.

Report of some numerical Results obtained from Examination of the Condition of the "*C. succirubra*" Plantations by Mr. *C. B. Clarke* in March 1871, under Instructions of Dr. *Campbell Brown*, President of the Chinchona Commission.

(1.) The following numerical results were obtained by following a single line of plants across the plantation, examining every tree. Patches of 1864 and 1866 planting were examined for reasons given in the notes; and in 1867 plantation, two lines were taken in order to get a larger number of plants within the breadth of the plantation.

(2.) This examination confirmed my opinion that the tabulation of results of no practicable number of trees would furnish sound grounds for generalisation concerning the whole, though the figures are for other purposes by no means without value. I selected good pieces of plantation in running the lines through the 1870 planting and line B. through 1868 planting, but the other lines pass mostly through inferior parts of the plantation. Very different numerical results would have followed a different choice of lines for examination.

(3.) The trees are planted, where the ground permits, six feet by six; holes at these distances, called *tullies*, are prepared. If the ground, from stoniness or wetness, is exceedingly unfavourable, no *tullies* are prepared in this part of the line; and where a *tully* has been prepared, no plant is put if a large stone is found close to the surface of the soil, or the *tully* otherwise appears very unpromising. After the first year the vacancies in the lines are filled up. No further filling up is done, because it is assumed, if two plants die out in the same *tully*, that it is probably not a favourable one, and at six feet apart a moderate percentage of vacancies does no harm.

Hence

Hence it is often impossible to estimate, except by guess, the per-centage of vacancies in the existing plantation. Where a vacancy in bad ground occurs in the line, we can often not ascertain how many *tullies* were originally dug, and where sufficient marks remain to assure us about this, we are not certain how many ever had trees planted in them.

(4.) The fourth column shows the per-centage of trees standing now sound, *i.e.*, which do not show any rotten places in the bark, however small.

In this column are included trees which have lost their leaders. Such trees may have lost their leaders by circular bark disease, hail, borers, wind, or various accidents; but if the tree showed no unhealthy bark, I could not generally venture to guess what might have been the cause of the loss of the leader

In this column also are included very many trees exhibiting long scars where the bark has been affected and longitudinal strips of it have died; but where the bark on the edges of such marks is now quite sound, and the whole plant vigorous, and, in our opinion, likely to make a good tree, I was in great difficulty how to tabulate these cases, which are very numerous in the older plantations.

(5.) The Rungbee valley is a gigantic stony landslip. The surface is covered in places with a very irregular thickness of vegetable earth; it may vary from six inches to several feet in thickness within a short distance. The soil below this is gritty and poor, filled with stones of every size, but in no place that I examined did I find clay below the vegetable earth. The *chinchona succirubra* trees exhibit the best growth where the vegetable soil is deepest; they become stunted and may never make trees where there is no vegetable soil at all; they die out where there occurs stagnant water at their roots. These very simple remarks are all that I can offer regarding the effect of soil, concerning which I received particular instructions to make observation.

Year of Planting.	Tullies Examined.	Trees Standing.	Per-centage of Trees Standing now Sound.	Average Height of Trees Standing.	Approximate Elevation of the Trees above the Sea, in Feet.
				Ft. in.	
1864 - - - - -	156	68	67	13 0	2,500
1865 - - - - -	None planted.				
1866 - - - - -	144	118	81	12 0	2,500
1867 - - - - -	499	437	76	8 0	2,200—1,500
1868 (*a*) - - - - -	327	273	71	3 6	3,000—2,400
1868 (*b*) - - - - -	133	112	83	6 4	2,300—1,900
1869 - - - - -	287	230	85	2 8	2,860—2,300
1870 - - - - -	100	90	97	3 0	2,400

NOTE on the Figures above for 1864.

In 1864 only one patch of 380 plants was planted out. No line of any length could be run through it, and the northern portion was selected for examination.

Of the 156 *tullies* examined, 53 contained the living stools of trees lately cut in the process of thinning. The ground remains well covered.

Of the 68 standing trees, 57 show distinct signs that they have at some period or other of their lives suffered from bark disease, and the other 11 have been nearly all cut down, at least once, which leads me to a strong suspicion that they have also been unhealthy at some time. These 1,864 trees might be statistically returned 100 per cent. diseased if our theory of "canker" be adopted, but their produce in bark has been satisfactory, and many of them are now very fine trees; in my opinion, likely to stand. It does not appear that any tree has ever died of bark disease, but several have been broken across at various heights from the ground by circular bark disease, and others would never make fine trees unless cut near the ground, and they shall then throw a healthy shoot. The soil on which this patch stands is exceptionally good, as is also the drainage.

NOTE on the Figures above for 1866.

In selecting the trees of 1866 for examination, there were four very different pieces of plantation to choose from, viz., (1) the Teesta plantation; (2) the Rishap corner; (3) Kennedy's ridge; and (4) the Rungbee patch.

Of these the last was selected, because—(1.) The Teesta plantation was known to be remarkably clean-stemmed; (2.) The Rishap corner has been judged by Mr. McIvor to be

the finest Rungbée plantation; (3.) Kennedy's ridge was planted late in 1866, and so many of the plants died that it was largely replanted in 1867; moreover, it has been lately very heavily thinned.

In this case (as in the 1864 planting) no long line could be taken, and a patch was examined; it chanced that the piece selected comprised a corner of old bamboo jungle which was exceptionally good.

Of the 144 *tullies* examined, 17 contained the living stools of trees cut in December 1870 for bark in the course of thinning; the trees thinned out were doubtless the worst.

Of the 118 trees now standing, 44 at least have at some time or other suffered from bark disease; of these, 22 are reckoned above as "now sound."

Many of the trees (as also of the 1864 trees examined) have been heavily barked, *i.e.*, strips three feet long have been taken off for half the circumference of the stem. The bark appears invariably to have grown again; but we must suppose the growth of the trees to have been checked by this process.

NOTE on the Figures above for 1867.

The strongest portions of the 1867 planting have been thinned; the lines examined were selected so as to pass through parts (autumn planted) of 1867 plantation, which have not been thinned.

The soil here is in turn swamp, rock, and slopes covered with good vegetable mould, giving the plantations the patchy aspect which characterizes lower Rishap. The upper 100 and lower 100 trees in these lines would have given totally different results; the upper 100 would show but 60 per cent. with stems now sound, the lower 100 would show 83 per cent. with clean stems.

In this respect, however, this one line gives correctly the character of the whole plantation in lower Rishap, as I know from other observations.

NOTE on the Figures above for 1868.

The line (A.) selected for examination commenced at the point near Spicer's Hut, where Mr. McIvor pointed out his views to the Chinchona Commission. It no doubt passes through the worst portion of the 1868 plantation, and indeed through the least successful part of the whole Rungbee plantations.

On running this line across the whole breadth of the 1868 planting from this point, the frequency of occurrence of diseased bark does not appear very high, but the number of stunted shrubby plants is very great; the average height of the upper 167 plants being but 2 feet 10 inches. These trees were, as I understand, planted carefully and well, but the ground here is almost entirely wanting in a cover of vegetable soil.

The line (B.) was selected (for contrast) in the good portion of the 1868 plantation. Of the trees marked as not having clean stems, only a very small per-centage were, in my opinion, affected with any unhealthiness likely to prove serious.

The per-centage of clean-stemmed trees in (A.) and (B.) does not appear very different, and gives no idea of the really different character of the planting, which, however, is faithfully represented by the average heights of the trees.

NOTE on the Figures above for 1869.

The line selected passes through the whole breadth of the 1869 planting, and the upper end of the line passes through some of the least successful plantation.

As in the case of line (A.) in the 1868 planting, the recorded per-centage of clean stems does not distinctly bring out the state of the plantation, but the difference in height shows distinctly enough how inferior the growth at the higher level is to that at the lower.

NOTE on the Figures above for 1870.

I selected here a good part of the plantation for examination.

The vacancies recorded occur chiefly in a swamp where the trees in all the adjacent lines are dead.

These fine young trees were raised by cuttings from old stock plants.

I regret the length to which these notes extend, but I fear that even with this copiousness of remark the statistics given may be misleading, given in some respects too good, in others too bad, an impression if generalised from.

C. B. Clarke.

APPENDIX (D.)

From *W. Lloyd*, Esq., Honorary Secretary, Darjeeling Chinchona Association, to Dr. *J. C. Brown*, C.B., President of Commission on Chinchona (dated Darjeeling, 2nd March 1871).

Sir,

ON behalf of the Darjeeling Chinchona Association I have the honour to submit, for your consideration, a representation touching one of those points on which (as I am informed) your Commission has been directed to report, viz., the propriety of further extension by the Government of its cultivation.

2. The correspondence on this subject between the Government of Bengal and myself has

has already been laid before you in a printed form, and I now beg to forward a printed copy of a letter since received from the Secretary to Government of Bengal, and my reply thereto.

3. I conceive that the admissions made by Mr. Secretary Thompson in his last letter leave it beyond further question that the Government, from the first and till recently, were very desirous that private enterprise should enter on this branch of industry, and both directly and indirectly gave every possible encouragement to it. We are distinctly informed that it was while not sanguine of inducing the public to respond to their invitations that they, as a precautionary measure, added to their own plantations; and only some two years ago, when private planters in the Nilgherries and at Darjeeling had entered very heartily, with the aid of scientific gardeners, into the speculation, and were carrying it on very largely, the Government, advowedly in their "great anxiety" for this object, still further to stimulate this enterprise, incurred the expense of forming two nursery gardens for the express purpose of supplying plants to those willing to enter upon it.

4. The five million of plants now growing out on private lands sufficiently prove how heartily planters have responded to the invitations given them.

5. But though the reason which we are told was what induced the Government to add to their own plantation has long ceased to exist; though they have created vast gardens more than sufficient to supply the requirements of all their hospitals throughout India; they now propose, according to Mr. Clarke's plan, which appears to have been approved of by the Government of India, to embark yet more largely in Chinchona growing as a commercial speculation of their own, and to reduce bark to a price which Mr. Clarke admits could "hardly be remunerative" to private growers.

6. Now, I beg to submit that the activity of Government enterprise for the two past years has already had the effect of checking private enterprise everywhere but in the case of this Association, which has persevered in the assurance given two years ago, but the propagation of *succiruba* had been stopped.

7. In view of the new policy adopted since the departure of the late Dr. Anderson, we have respectively asked the Government to explain with what object we are encouraged to go into this cultivation; for, under the prospect now presented to us, we were prepared at once to abandon it, perferring, of course, the sacrifice of what we have already expended to continuing a hopeless competition which would but involve the Association in deeper ruin.

8. We humbly submit that the question now to be considered is whether the Government, after professedly desiring and directly encouraging private enterprise, may now drive it from this field, which it is simply impossible to suppose they both can continue to occupy.

9. We are prepared, if allowed, to continue the cultivation to any extent required; and by simply announcing that no further extension would be made to their own plantations, Government would induce large numbers of planters immediately to enter on this field.

10. Further, I can feel no hesitation in saying that the only reason which can be given for the Government continuing to cultivate *calisaya* is to secure commercial profits thereby. The public would be ready to purchase all their nursery plants of this variety, and their propagation by private enterprise would be quite as rapid as could possibly be desired.

11. As to the other phase of the question, we submit that, in the event of the Government determining to persevere in the enterprise, and thus, by driving private planters out of it, assuming the responsibility, with the profit, of growing bark on a vast scale, then not merely justice but expediency suggests the advisability of buying up our plantations on the equitable terms I proposed. It is obvious that the more expeditiously the task can be accomplished, the greater will be the gain in economy. Our plantations are but little inferior in extent to those of the Government, and, as the inspection which we court will show, they are in every other respect equal to those. They adjoin each other for several miles, separated only by a *jora*, and the two would form a magnificent and compact block in a ring fence. The means would thus be attained also of entering at once upon the manufacture of quinine on a very much larger scale than would otherwise be possible, while our nurseries would afford the means of planting double the acreage which could be effected through Rishap alone.

12. I submit these considerations to your kind attention, and ask pardon for the length of this communication.

Appendix (D 2.)

From *C. B. Clarke*, Esq., in charge, Botanical Garden, to *W. Lloyd*, Esq., Honorary Secretary to the Darjeeling Chinchona Association (dated Calcutta, the 27th March 1871).

Sir,

I am directed by Dr. C. Brown, C.B., President of the Commission on Cinchona, to acknowledge the receipt of your letter of the 2nd March 1871, and to communicate to you in reply the decision of that Commission that, under the Resolution of Government constituting them, they are not empowered to consider any proposal for the purchase of a

private chinchona plantation, or to offer any recommendation to Government concerning such a purchase. Nor, indeed, does it appear to the Commission that, by giving the widest interpretation to the general terms of their instructions, such a question of purchase can be fairly drawn within the scope of their inquiry.

2. The Commission therefore consider that you are under a mistake in thinking that they have been directed to report on the points raised in your letter.

3. The Commission further remark that, from the correspondence forwarded by Government to them for their information, it appears that the arguments and proposals of the Darjeeling Chinchona Association have already been very fully laid before Government, and have, after correspondence and deliberation, been duly pronounced upon by Government; and under these circumstances the Commission do not feel at liberty to attempt any interference in the business.

4. The Commission, thus, are unable to say more than that your letter of the 2nd March 1871 shall be forwarded to Government, together with the records of the Commission.

Appendix (E.)

As the Committee is unable to arrive at a unanimous decision as to the process best adapted for the extraction of the alkaloids in a tolerably pure state, Mr. Broughton's opinions on the subject differing so essentially from mine, I am obliged to submit my views to Government in a distinct report.

In order to place the matter before them in as clear a light as possible, and to render a comparison of the two processes more easy, I will first briefly describe that adopted by Mr. Broughton in all its stages, and afterwards that which I am led to think will be most suitable under present circumstances. Mr. Broughton's process includes the following operations, numbered in the order in which I have put them down :—

I. The fresh bark is boiled for several hours in a copper boiler with water containing a certain amount of sulphuric acid; the bark is then squeezed in a powerful press, and the operation repeated two or three times with fresh water and acid.

II. The acid decoction, containing the chinchona alkaloids in solution, mixed up with a number of impurities extracted by boiling, is allowed to cool.

III. Milk of lime is added in excess to the liquid. This causes the precipitation of the alkaloids together with a quantity of impurities extracted from the bark by boiling.

IV. After some time this precipitate is thrown into bags and allowed to drain.

V. The precipitate is dried.

VI. The precipitate is reduced to a coarse powder between ordinary grindstones.

*VII. The precipitate is now put into a copper vessel, which is fitted to another of the same metal containing alcohol acidified with sulphuric acid. This alcohol is then heated, and by an ingenious contrivance the hot vapour of it is made to permeate the precipitate over and over again until the latter is supposed to be exhausted of all its alkaloid. This operation takes a considerable time, at least 48 hours being required for the exhaustion of 50 lbs. precipitate.

VIII. The copper retort containing the alkaloids dissolved in the acidified alcohol is connected with the worm of a still and the alcohol recovered, leaving behind in the retort the alkaloid, of the consistence and colour of treacle or tar, owing to the admixture of a considerable quantity of colouring matter and resin, &c., &c., which was washed out of the precipitate along with the alkaloids by the alcohol in operation VII.

IX. This dark acid mass is now thrown into a bucket of cold water, the effect being to precipitate a quantity of impurities (very variable), to leave the alkaloids and the remainder of the impurities dissolved in the water.

X. The precipitated impurities having been removed, caustic soda or potash is now added to this acid solution of the alkaloids, so as nearly to neutralise all the free acid. (This requires some dexterity: if carried too far, there will be a considerable loss of alkaloid; if not far enough, the preparation will ultimately have a bad colour.) The object of this is to precipitate a further quantity of colouring matter, &c., whilst the bulk of the alkaloids remains in solution.

XI. Filter the above, and to the filtrate add soda or potash in excess, which will precipitate the alkaloids.

XII. Allow the precipitate to drain in bags.

XIII. Dry the precipitate, which is Mr. Broughton's so-called *amorphous quinine*. (*Vide* sample A.)

N. B.—In addition to all these details, a considerable amount of alcohol adheres to the exhausted precipitate. This has to be washed out with water and recovered by distillation.

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* *Vide* letter and enclosures from Inspector General of Hospitals, dated 4th July 1871, page 92.

Dr. Simpson's Process.

I should premise, before entering on its details, that it was suggested to me by Professor Debrig, whilst I was studying the chemistry of the chinchona barks in his laboratory, as a process likely to prove very suitable for the extraction of the alkaloids from the fresh bark at Darjeeling. I have named it my process merely in contradistinction to that of Mr. Broughton. The principles are novel in neither, whilst some of the practical details are so in both.

I advocate it in preference to Mr. Broughton's process, because I think it much simpler in its details, and because it produces a safer product. I judge from Mr. Clarke's working of the process, as I have not seen any specimen of that prepared in Madras.

I. Infuse* the bark in cold dilute acid for at least 24 hours; squeeze in a powerful press, and repeat the operation three times.

* Mr. Broughton has called my attention to the fact that I have omitted to state that the bark must be crushed.

II. To the acid infusion which contains the alkaloids and some impurities (but infinitely less of the latter than extracted by boiling) add potash of soda in such quantity as nearly to neutralise the acid; this has the effect of throwing down a quantity of colouring matter and other impurities, the bulk of the alkaloids remaining in solution.

III. Filter the above, and to the clear filtered solution add soda or potash in excess, and the alkaloids are precipitated.

IV. Dry the precipitate, which is the *chinchona alkaloids* by Dr. Simson's process. (*Vide* Sample B.)

A casual glance at the above would naturally lead anyone (even a chemist unacquainted with the chinchona alkaloids) to the conclusion that the last-described process is infinitely the better of the two, always supposing the products to be equal in value.

I should be sorry, however, that any such conclusion should be hastily formed. Mr. Broughton has had great experience in working with fresh bark, and I have had, speaking comparatively, none. He assures me that he has tried my process, though, he admits, not with all the conditions fulfilled, and that he has settled on his own as the most suitable one.

The only real objection that can be raised to this process is *loss of alkaloid*, or a greater amount of acid (and consequently more alkali) required to extract by cold infusion the same amount of alkaloid that can be obtained by *boiling* with a lesser quantity. I am of opinion, however, from some experiments I have made bearing on this very point, that both loss of alkaloid and any great additional expenditure of acid may be obviated in practice by using certain precautions in the details of the process. At the same time I wish it to be clearly understood that I do not uphold this process to the exclusion of Mr. Broughton's or any other, but on account of its great comparative simplicity, and the fact that the apparatus necessary to carry it out, even on a large scale, can be purchased on the spot at a nominal cost. I strongly recommend the Government to give it a fair trial in competent hands.

The questions to be determined by the experiment would be—

1st. Whether the process yielded less alkaloid than is obtained by Mr. Broughton's from a similar sample of bark.

2nd. If less, how much less; and whether or not the loss in alkaloid is not more than compensated for by the cheapness of process and requisite machinery. If after a sufficient trial the loss should still prove serious, I should either modify or abandon the process; if not, I think there can be no doubt as to its being the better one of the two.

There are, in my opinion, defects of a much more serious nature in the process advocated by Mr. Broughton, one of them at least being of a grave nature. First of all, there is the chance of an explosion; the process, as performed at Rungbee, being left a good deal in the hands of native coolies, and the retorts containing the alcohol being treated with naked fire.

Next, there is the constant liability of Government being cheated in the matter of alcohol, a beverage of which hill coolies are particularly fond; and last, though not by any means least, is the danger of the product being contaminated with copper if the operation be not conducted with care and skill. Indeed, I can hardly conceive its not being so contaminated during some stage of the process, and to remove this, contamination must therefore be considered as another stage or operation in Mr. Broughton's process.

This gentleman's chief objection to the cold infusion is the alleged loss of alkaloid, which, he says, is practically *nil* in his process.

Considering the nature of the substance which he has to exhaust with alcohol, viz., a quantity of alkaloid wrapped up, so to speak, in a mass of sulphate of lime, which latter is *insoluble* in spirit, I have from the first doubted whether he *did* recover all the alkaloids, and in order to test the truth of my theory on the subject, I powdered *very minutely* and subjected to prolonged boiling in alcohol a small quantity of the precipitate which was thrown away as exhausted at Rungbee, and I think I shall be able shortly to show the Government that I was correct in my supposition. Here again, however, I must call attention to the fact that I got this precipitate at Rungbee, and it does not at all follow that I should

succeed in obtaining similar results in Madras, where the operations are conducted under Mr. Broughton's own superintendence. The test laid down by him to show when the precipitate becomes exhausted was duly applied in this particular case before it was thrown away.

My objections to the process owing to the danger of copper contamination are, I consider, sufficiently upheld by the evidence I have produced to the Commission. I have known for a considerable time that Mr. Clarke's "amorphous quinine" contains copper, and on analysis I found 10½ per cent. of metallic copper in a sample given to me by Mr. Gammie, at Rungbee, and Dr. Macnamara,* the chemical examiner to Government, whose certificate I append, has analysed it with similar results. It is to be borne in mind that this 10½ per cent. of metallic copper represents nearly 20 per cent. (one in five parts) of impure carbonate, in which form it probably exists in the alkaloid.

* *Vide* certificate of chemical examiner to Government attached to this report.

An opinion has been very freely ventilated by Mr. Clarke, the officiating superintendent of the chinchona cultivation, that scientific superintendence is quite unnecessary in the manufacture of Mr. Broughton's product, and that he has entrusted it all along to a gardener and a few coolies who performed it entirely to his satisfaction. I should imagine that his opinions on this subject will now be considerably modified.

A fresh batch of this "amorphous quinine" in considerable quantity has now been sent down to the medical storekeeper, which I find also to contain copper in large quantities. I have fortunately been able to detect its presence sufficiently soon to prevent its issue; but had it been otherwise, it is impossible to over-estimate the very painful and false position in which Government might have been placed by incurring the responsibility of issuing, in total ignorance of the fact, to its hospitals and dispensaries a drug containing large quantities of a very dangerous poison. I should think that if anything should convince Government of the false economy of leaving delicate chemical operations in the hands of a gardener and a few native coolies, instead of entrusting it to scientific and trained superintendence, it would be the escape they have now had.

I am not at all satisfied that either of the existing processes described in this Paper is the best *absolutely*. I believe that must be learned by experiments made on the spot with the facilities afforded by the Government plantations. It is hardly necessary for me to point out the slight chance which exists of such experiments being carefully conducted by persons absolutely devoid of the most elementary chemical knowledge.

In conclusion, I beg to call the attention of Government to a report from C. B. Clarke, Esq., M.A., Officiating Superintendent, Botanic Garden, and in charge of chinchona cultivation in Bengal, to the Secretary to the Government of Bengal, No. 202, dated Rungbee, Darjeeling, 1st July 1870. I am reluctantly compelled to adopt this course, as a considerable portion of this report is devoted to the subject of manufacture; and were the statement therein contained allowed to pass without contradiction, the Government might at some future period be led into useless expense.

Passing over numerous minor errors in other parts of the report, as not immediately affecting the question, he makes, in paragraphs 37 and 38, some very bold assertions, the condensed meaning of which I take to be that when medical officers object to Mr. Broughton's amorphous quinine as of uncertain composition, containing an uncertain amount of quinine, the rest being "perhaps a powerful quinizing alkaloid, perhaps rubbish," whilst they argue that they know what they are giving when they administer a dose of sulphate of quinine; if we are to believe Mr. Clarke, their objections are groundless, inasmuch as the ordinary sulphate of quinine is merely a mixture of the alkaloids, and therefore open to the same objections as Mr. Broughton's product. On these grounds, too, he defends the term "amorphous quinine" (which has been most improperly given to it) on the *analogy* of sulphate of quinine.

Unfortunately, however, for his argument his premisses are false; the fact being that sulphate of quinine, as issued from every respectable manufactory, is a tolerably pure drug, generally containing only minute traces of the other alkaloids: and I doubt if Mr. J. E. Howard, to whom the Indian Government and the scientific world generally are so much indebted for his valuable contributions to the literature of this subject, or any other gentleman connected with the manufacture of quinine, would feel much flattered at such statements as these of Mr. Clarke appearing in a Government record. If they issue as sulphate of quinine worth *Rs.* 6 8. 0. a substance which is after all only a mixture of a small quantity of this with other less valuable alkaloids worth less than half the price, it simply amounts to *fraud*.

Again, in paragraph 42 of the report in question, Mr. Clarke upholds the adoption of Mr. Broughton's process at Rungbee as affording certain advantages, one of which he states to be that, if at any time it is wanted to manufacture the crystallised sulphates, Mr. Broughton's process forms the first two steps in that manufacture, and that all the machinery, &c., will remain useful. In paragraph 43 he says he finds an impression still exists widely that the manufacture of quinine is a secret; that such impression is a false one, and that any good handbook of chemistry will show how it is to be done.

I am in a position to state, having studied the mode of manufacture on a large scale in Europe, that this impression, so widely current, is a perfectly correct one, so far at least as Mr. Clarke is concerned; of course, judging merely of his knowledge of the subject by his own statements and recommendations to Government. I unhesitatingly affirm that Mr. Broughton's machinery is not adapted to the production of disulphate of quinine on a large scale, and I entirely deny that his process forms the two first steps in that manufacture, as asserted by Mr. Clarke.

It seems to me a pity that such crude statements should disfigure an otherwise able report; and it is, I think, to be regretted that Mr. Clarke, who does not profess, I believe, to have much knowledge of chemistry, should have hazarded any recommendations to Government on a subject with which even, according to his own showing, he is so imperfectly acquainted.

I could easily point out numerous other errors in this report, were they of sufficient importance to affect the questions at issue. I will merely content myself with showing the fallacy contained in the last sentence of paragraph 44, in which Mr. Clarke points out, as one of the great advantages in Mr. Broughton's process, that "a result of certain purity *without analysis* is thus arrived at."

So far from this being the case in practice, it would now appear that Mr. Clarke's medical officer, who objected to his "amorphous quinine" as possibly containing "rubbish," must have been better acquainted with its composition than Mr. Clarke supposed, for it is now clearly proved that he was well within the mark, the "amorphous quinine" containing, as it does, not only rubbish, but rank poison.

B. Simpson, M.D., A.M.,
Civil Surgeon of Patna.

CERTIFIED that I have examined a sample of chinchona alkaloids given me by Dr. Simpson, and that it yields 10·5 per cent. of metallic copper.

F. N. Macnamara, M.D.,
Medical College, 23 March 1871. Chemical Examiner to Government.

APPENDIX (F.)

MEMORANDUM.

Dr. SIMPSON having been good enough to allow me to read his attached report, I take this opportunity of mentioning a few facts connected with its subject.

2. My process was adopted after a thorough consideration of the whole subject, which includes Indian barks and indigenous manufacturing materials among its items. I have fully tried the process of infusion now recommended by Dr. Simpson, employing altogether about 2,000 lbs. of red bark in the experiments. The conditions were nearly those laid down by Dr. Simpson, the only failure being that the bark was not *crushed* beforehand, but simply cut small. I found by suitable analyses that but two-thirds of the whole amount of alkaloid contained in the bark was extracted, and that the amount of acid that was requisite, even with the greatest economy, was more than four times as much as that necessary when boiling was applied. This acid being the only manufacturing material brought from Europe, it is exceedingly necessary that it should be employed with the greatest economy.

3. Furthermore, according to Dr. Simpson's verbal statements (*vide* Proceedings of Commission), it is quite necessary that before the bark be subjected to his process that it should be *crushed* by machinery. Indeed, if the bark were submitted whole to the acid water, scarcely any alkaloid would be extracted. It is this necessity which detracts greatly from the simplicity of the process; nor am I aware of any existing machine which will effectively perform this necessary work. The difficulty of cutting bark small is great; but the thorough crushing of so tough a material in large quantities appears to me to be likely to increase the cost of the final alkaloid beyond economical limits, even on the supposition that the process were otherwise effective.

4. My objections to Dr. Simpson's process are—1st, that it does not extract the whole of the alkaloid; 2nd, that it requires far more acid than process of boiling; 3rd, that it entails much previous preparation of the bark. It is not claimed to be a novel process.

5. Dr. Simpson's main objections to my process are—1st, the possibility of explosion; and 2nd, the danger of copper occurring in the product.

I may state that I now employ a condensing arrangement at Ootacamund of the most simple construction, by which no explosion can possibly occur. In nearly two years' working with less effective arrangements no explosion whatever has occurred.

It is obvious that where copper vessels are employed, no specimen of alkaloid should ever leave the manufactory without being tested for so easily recognised an impurity. In one and a half years' work, I have *once* had to remove copper from the manufactured alkaloid, in which case it was tested before final precipitation. It is hardly necessary for me to disclaim all responsibility for any preceeding or result met with at Rungbee.

6. The liking of coolies for alcohol has really been a difficulty. Of late, at Ootacamund, I have not lost any, because a very careful watch has been kept over its employment, but when I first began to work a certain amount was certainly stolen. Care in this particular is certainly necessary, but is effectual. Several substances suggest themselves, whose admixture with alcohol would render it unpalatable without affecting its efficiency. But if, however, the price of spirit at Rungbee be but two annas a pound (as appears probable from the price of grain), it will not be worth while to make any preparation, except watchfulness against so trifling a loss as it then becomes. Alcohol is a tool, not a material; since all except two per cent. is recovered and re-used.

7. My process is more complex than that advocated by Mr. Simpson, but with the exception of a small per-centage of acid (about one and one-fourth of the weight of the bark), it deals entirely with Indian materials. It has worked for one-and-half years satisfactorily on a moderate scale. In Proceedings, Madras Government, Public Department, of 11th January, No. 18, very favourable results are given as to its actual medical use. When 800 pounds per year are manufactured of the alkaloid, it will cost one rupee per ounce. Larger amounts will be made at a still cheaper rate.

8. With the above statements I join with Dr. Simpson in expressing a hope that his process may be fairly tried on a moderately large scale, in order that the difficulty of machinery may be fairly considered, and that it may be tried by a competent man, and on Indian red bark.

John Broughton,
Quinologist to Government, Madras.

Calcutta, 25 March 1871.

APPENDIX (G.)

SCHEDULE to be used in the Periodical Chinchona Reports.

TABLE (A.) of the Year 1864.

Chinchona Succirubra, date .

Number of Plants.	Number Diseased.	Number Doubtful.	Casualties.		Height of each Plant.	Increase.	Greatest Growth.	Least Growth.	Average Growth.	Remaining.			Depth of Subsoil from Surface.	General Remarks.
			Death.	Otherwise.						Healthy.	Diseased.	Doubtful.		
100														

MEMORANDUM attached to Schedule G., by Dr. *J. Campbell Brown.*

Two hundred plants of each year's planting to be taken for observation; a hundred in one part of the ground, the same in another. Fifty to be counted in succession in two contiguous rows at one place; the same at another, a little distance from the point.

On the first occasion of counting, the vacancies met with to be noted, and the number entered in the column for Remarks.

Measures to be taken for permanently marking off the rows immediately they have been decided on.

The plants to be examined half-yearly or yearly, as may be thought desirable, and the result entered in the form given in the following page. In the first set of Tables drawn up, a number of the columns would necessarily be vacant. There should be a separate Table for each hundred plants of each year's planting; A for those of one part, B for those of another, and the same for each species. *Succirubra* and *calisaya* the only two now to be grown. Plantings of future years to be similarly dealt with.

Further propagation by "cuttings" or "seed" to be kept an exact account of.

Depth of subsoil to be taken in two or three different places on the ground covered by each hundred plants.

Under the plan suggested, there having been no planting in 1865, the plants of *succirubra* to be taken account of would be 1,200, and of *calisaya* planted in 1868-69-70 would be 600; in all, 1,800. This seems a small number perhaps to represent the plantation, but it is thought it would be better to gather exact and carefully drawn up information regarding a few, than an account of a larger number which might be less likely to be accurate. In going over the ground for the few, there would be an opportunity of gaining a good idea of the whole.

Appendix (H.)

Being a Memorandum of Mr. *C. B. Clarke* on Appendix (G.)

1. I DIFFER from the other members of the commission merely on the details of the Schedule in Appendix (G.) which it is proposed to introduce.

The filling up that Schedule involves, besides a record of well ascertainable facts, the numerical tabulation of several matters of opinion, concerning which no two gardeners now on the plantations agree; and it is therefore reported (in paragraph 12 of the Report) that it is undesirable that the filling up of the Schedule proposed in Appendix (G.) should be entrusted to gardeners.

I believe, on the other hand, that the information really required may be safely obtained from the resident gardeners by adopting for the form of Schedule an extension of the Tables now in use.

I append a copy of the half-yearly Report for 31st September 1870, in which the measurements of 75 trees are shown by tabular statement.

2. I should hardly have thought it necessary, on a point of detail, to have drawn up a minute in opposition to the other members of the commission; but the carrying out of these measurements will devolve on the superintendent of the plantations, and I feel that I cannot recommend a plan to Government in carrying out which I see so much difficulty. To examine as detailedly as proposed 1,800 trees scattered on a wide plantation will be a work of time; it will be a considerable journey from the inspection bungalow to each row of trees to be examined. Practically, it will not be found worth while to attempt to proceed with the work during wet hours. What is really necessitated by the Report (paragraph 12), is, that Government should depute an officer to journey to Rungbee, at regular intervals of six months or twelve months' stay there, and carry out these measurements, all which I believe unnecessary for attaining the proposed object.

Under the scheme in Appendix (G.), 1,800 trees require to be examined. I estimate that in two years' time 3,000 trees would require to be tabulated, as there will probably be a third species of chinchona cultivated.

3. Turning to the details of the Schedule in Appendix (G.).

There will be a difficulty in determining the "number of plants" for the reason shown in my minute in Appendix (C.).

There will be a difficulty in returning the "number diseased," as no two gardeners coincide about disease, and no definition of disease is suggested. This difficulty is meant to be provided against by the next heading of "doubtful;" but the numbers obtained under this system of classification at six monthly intervals will be, in my opinion, of little value.

The cause of deaths is required to be ascertained in the next column. I expect the results obtained here will be of small value.

The tabulation of the plants left standing as healthy, diseased, doubtful, I do not expect to furnish valuable results; different men will estimate differently the plants. I do not say in any of these cases that an expression of opinion may not be valuable. I do not consider these points of opinion likely to be well represented by numerical tables.

On comparing Appendix (C.) my grounds for supposing it of no use to tabulate at two or three places the thickness of the vegetable soil will be at once inferred.

4. Speaking generally, I should be exceedingly sorry to attempt to fill up the Schedule (G.) for 100 plants on the plantation. I could not do it in a way that would be satisfactory to myself.

5. I suggest that a schedule of the annexed simple form be used:—

	Date of planting out.	Height on April 1871.	Height on Oct. 1871.	Increase.	Decrease.	Remark on the Condition of each Plant.
		Ft. in.	*Ft. in.*	*Inches.*	*Inches.*	
1	1 March 1868	8 10	10 10	24	- -	Sound.
2	- - -	8 0	4 0	- -	48	Leader gone.
3	- - -	3 0	3 8	2	- -	Is over a large stone.
4	- - -	6 4	- -	- -	76	Dead.
5	- - -	7 6	11 3	45	- -	Now sound.
6	- - -	5 6	6 0	6	- -	Sickly; in a swamp.
7	- - -	7 6	1 6	- -	72	Cut down for unhealthiness, and has thrown a shoot.
8	6 March 1868	6 4	10 0	44	- -	Sound.
9	- - -	9 6	2 0	- -	90	Cut in the course of thinning, and has thrown a shoot.
10	- - -	5 6	7 3	21	- -	Sound.
11	- - -	and so forth.	—	—	—	—
12	- - -					

6. The rows selected for record will have a numbered stick at the base of each tree. When these have once been placed, it will, from the irregularity of the plantation, be utterly impossible to shift them to any other line.

All the facts required can then be left to the gardeners, for (as now) the superintendent, without visiting the plantation at any particular month, can test in a morning the whole six monthly record sufficiently.

7. The facts being thus ascertained, they should (as now) be printed *in extenso*; and it will be the duty of the superintendent to make such deductions and generalisations from them in his report as he thinks warranted. The average growth in height will be a most valuable deduction while the trees are small; but when the trees get any size, it is difficult to make. If the trees are thinned, the worst are cut down; so that by giving the average of the remainder an enormous growth appears: if the trees are not thinned, they are not given a fair chance of growth. [This difficulty applies now to the present measurement of *C. calisaya*.]

8. The casualties that affect the trees are so varied, that I think a remark column is the only way of representing them.

So in the case of affections of the bark, which in some forms are very fatal to the whole of the branch above the affected part, it is a matter of opinion whether one of the more serious forms is a variety, or even a necessary consequence of another comparatively harmless form. But I do not think it is advisable to frame a schedule which shall introduce the tabulation of such matters, or with the object of refuting a particular theory regarding them. Provided a tree grows regularly several feet a year, I do not regard much such speculations; the tree will produce a satisfactory amount of bark, and, as a general rule, I do not fear trees dying which have been as yet growing well; if they meditate dying extensively, I expect them to stop growing first. The most serious forms of disease are those which cost a tree its leader, and the tabulation of heights only at once represents this sufficiently.

I therefore consider that, after all, tables showing growth, contain essentially the information wanted, and without admixture of controvertible matter.

9. I quite agree in the concluding remarks of Dr. J. Campbell Brown's minute. I go further, and question whether the record of a much smaller number of trees will not be as valuable as that of 1,800, which latter number affords poor ground for generalising concerning 1,200,000 trees.

I think one row of 50 trees recorded in each year's plantation would answer the required purpose. It must be recollected that the preparation of these statistics costs Government money; that lists of 50 for six years' plantation of *C. succirubra* and three years' plantation of *C. calisaya* will occupy nine pages of printing, and that this number will rapidly increase. This will be exclusive of deductions, and may, I fear, be cumbrous. Indeed, in my original scheme, I proposed to examine lines of 25 only in each year's planting, but I substituted lines of 50 in trying to meet the views of the other members of the commission.

10. The present Appendix (H.) has been drawn up in extreme haste, in order not to delay the submission of the report.

REPORT on the Cultivation of Chinchona at Darjeeling for the half-year ending 30th September 1870.

THE season has been unusually wet, the rainfall having already (25th October) amounted at the inspection bungalow to 200 inches, whereas the total fall for the year averages 180 inches only. The health of the plantations of *C. succirubra* and *C. calisaya* has remained good, and their growth satisfactory, though somewhat less than that of the preceding year. But *C. officinalis* has suffered more than during previous rainy seasons, and all hope must be abandoned that this species can be grown to an economic profit at Rungbee.

Taking the plantation called the 5th in the tabular report, which represents best the present centre of the plantations, it will appear that the average growth of the measured plants of *C. calisaya* for the half-year has been 36 inches, and that of *C. succirubra* 22 inches. The latter, from accidental circumstances in choice of the plants measured, is too low, and does not represent fairly the growth of plants of that age in that part of the plantation. The best plants of *C. succirubra* and *C. calisaya* have, within three years of planting out, surpassed 20 feet in height. No measurement is given of *C. officinalis*. It may be said generally of the older plants, that some 40 per cent. perished during the last six months, and that those which survived did not grow. The number of plants of *C. officinalis* has been by estimation reduced from 930,704 on 31st March 1870, to 440,000 on 30th September

tember 1870; but it would be best, in any calculations regarding these plantations, to write off these 440,000 at once; for, though some of them may survive for years, there is no probability that any profitable result will ever be derived from them.

Throughout the *C. officinalis* plantation below 4,500 feet level, *C. succirubra* was planted in 1869, in order to utilise area kept clean at considerable expense. These young *C. succirubra* promise exceedingly well.

The 164,615 plants of *C. succirubra* planted out during the early part of the six months under report were required to fill up the 1,000 acres of that species as designed by Dr. T. Anderson. The 33,101 plants of *C. officinalis* were put out at a higher level (5,000 feet) than before, as an experiment.

By far the greater portion of the coolie labour is spent in scouring the young plantations during the rains. In order to ensure a sufficient supply of labour at this period, it is necessary (as in the surrounding tea plantations) to maintain the coolies during the year, so that during the cold weather it has been difficult to devise sufficient employment for them. The cold weather is the best time for planting out; and in accordance with Dr. T. Anderson's advice, it is proposed, during the ensuing cold season, to employ them in planting out *C. succirubra* in a rough way, on some portions of the reserve which are at too high a level for *C. calisaya* to thrive upon; and it is for this purpose that a considerable quantity of *C. succirubra* seed has been raised, put down at 500,000 (including some stock raised by cuttings) in the accompanying tabular statement.

C. calisaya has set its seed very favourably during the last two months. This seed should ripen in the course of next spring; and it is hoped that in future the quantity of seed produced will be sufficient to enable the extension of *C. calisaya* in any quantity that may be thought desirable.

The usual tabular statements are appended.

TABLE showing the Temperature at the different Plantations for the Half-year ending 30th September 1870.

PLANTATIONS.			Mean Maximum.	Mean Minimum.	Mean Temperature.
April -	1870	2nd plantation - - -	- - -	54·40	—
		4th ditto - - -	- - -	53·92	—
		Rishap ditto - - -	84·80	61·30	73·05
May -	„	2nd plantation - - -	- - -	60·17	—
		4th ditto - - -	- - -	62·92	—
		Rishap ditto - - -	88·67	68·19	78·43
June -	„	2nd plantation - - -	- - -	61·78	—
		4th ditto - - -	- - -	66·17	—
		Rishap ditto - - -	84·16	69·80	76·98
July -	„	2nd plantation - - -	- - -	64·	—
		4th ditto - - -	- - -	67·48	—
		Rishap ditto - - -	81·37	70·68	76·03
August -	„	2nd plantation - - -	72·90	63·	67·95
		4th ditto - - -	79·60	67·40	73·50
		Rishap ditto - - -	84·30	70·40	77·35
September	„	2nd plantation - - -	71·80	60·80	66·30
		4th ditto - - -	80·28	65·53	72·95
		Rishap ditto - - -	83·40	69·	76·20

TABLE showing the Maximum and Minimum Growth for the Half-year ending 30th September 1870.

NAMES OF SPECIES.	TEESTA.		RISHAP.	RUNGBEE.	
	First Plantation.	Second Plantation.	Third Plantation.	Fourth Plantation.	Fifth Plantation.
C. succirubra -	Not measured	Not measured	5 to 33 inches	21 to 32 inches	9 to 40 inches.
C. micrantha -	Ditto -	Ditto -	18 to 28 „	28 to 37 „	24 to 44 „
C. calisaya -	Ditto -	Ditto -	16 to 44 „	16 to 23 „	26 to 48 „

TABLE showing the Number and Distribution of Chinchona Plants in the Government Plantations at *Darjeeling* on the 1st October 1870.

Names of Species of Chinchona.	Number in permanent Plantations.	Number of Stock Plants for Propagation.	Number of Seedlings or Rooted Cuttings in Nursery Beds for permanent Plantations.	Number of Rooted Plants in Cutting Beds.	Number of Cuttings made during the Month.	Total Number of Plants, Cuttings, and Seedlings.
C. succirubra - - -	12,19,715	20,000	1,20,000	2,60,000	1,20,000	17,39,715
C. calisaya - - -	24,860	10,000	34,500	23,000	8,000	1,00,360
C. micrantha - - -	29,667	- None -	- None -	- None -	- None -	29,667
C. officinalis and varieties -	4,40,000	- -	- -	- -	- -	4,40,000
C. pahudiana - - -	5,092	- -	- -	- -	- -	5,092
TOTAL - - -	17,19,334	30,000	1,54,500	2,83,000	1,28,000	23,14,834

Rungbee, 3 October 1870.

J. Gammie,
Head Gardener in charge,
Chinchona Plantations, Darjeeling.

TABLE showing the Growth of Chinchona in the *Darjeeling* Plantations during the Six Months ending 30 September 1870.

NAMES.	Numbers.	1st Plantation (Teesta), Altitude 900 Feet.					2nd Plantation (Teesta), Altitude 450 feet.					3rd Plantation (Rishap), Altitude 2,000 Feet.					4th Plantation (Rungbee), Altitude 3,332 Feet.					5th Plantation (Rungbee), Altitude 2,556 Feet.				
		Date of Planting 18 .	Height in Inches on	Height on 1st	Height on 1st	Growth during	Date of Planting, 18 .	Height in Inches on	Height on 1st	Height on 1st	Growth during	Date of Planting, 1867.	Height in Inches on 1st January 1868.	Height on 1st April 1870.	Height on 1st October 1870.	Growth during the Six Months.	Date of Planting, 1864.	Height in Inches when planted.	Height on 1st April 1870.	Height on 1st October 1870.	Growth during the Six Months.	Date of Planting, 1864.	Height in Inches when planted.	Height on 1st April 1870.	Height on 1st October 1870.	Growth during the Six Months.
C. succirubra	1	–	–	–	–	–	–	–	–	–	–	29 March	29	129	159	30	29 July	5	159	187	28	15 Oct.	6	271	280	9
Ditto	2	–	–	–	–	–	–	–	–	–	–	29 „	30	145	172	27	29 „	6	145	166	21	15 „	10½	175	194	19
Ditto	3	–	–	–	–	–	–	–	–	–	–	29 „	37	129	161	32	29 „	7½	159	189	30	29 July	5½	187	201	13
Ditto	4	–	–	–	–	–	–	–	–	–	–	29 „	24	146	179	33	15 Oct.	10½	156	180	24	29 „	3	192	204	12
Ditto	5	–	–	–	–	–	–	–	–	–	–	29 „	37	158	166	8	29 July	4¾	130	153	23	29 „	5½	196	232	36
Ditto	6	–	–	–	–	–	–	–	–	–	–	29 „	30	158	182	24	29 „	4½	92	112	20	29 „	3	156	190	34
Ditto	7	–	–	–	–	–	–	–	–	–	–	29 „	27	105	133	28	29 „	3¼	168	200	32	29 „	4	226	266	40
Ditto	8	–	–	–	–	–	–	–	–	–	–	29 „	30	152	176	24	29 „	2	136	157	21	29 „	4½	174	198	24
Ditto	9	–	–	–	–	–	–	–	–	–	–	29 „	29	135	146	11	29 „	3	129	159	30	29 „	4	197	224	27
Ditto	10	–	–	–	–	–	–	–	–	–	–	29 „	25	114	119	5	29 „	3	153	180	27	29 „	3	184	198	14
C. micrantha	1	–	–	–	–	–	–	–	–	–	–	16 „	17	129	157	28	15 Oct.	9	165	202	37	29 „	5½	105	134	29
Ditto	2	–	–	–	–	–	–	–	–	–	–	16 „	19	137	162	25	29 July	6½	128	162	34	29 „	6	108	132	24
Ditto	3	–	–	–	–	–	–	–	–	–	–	16 „	44	141	168	27	29 „	3	124	154	30	15 Oct.	6	120	164	44
Ditto	4	–	–	–	–	–	–	–	–	–	–	16 „	46½	149	169	20	29 „	2½	123	155	32	29 July	4½	145	170	25
Ditto	5	–	–	–	–	–	–	–	–	–	–	16 „	55½	157	175	18	15 Oct.	3	119	147	28	15 Oct.	5½	138	165	27
																	1867.					1868.				
C. calisaya	1	–	–	–	–	–	–	–	–	–	–	29 June	25	136	180	44	29 June	15½	81	99	18	1 Jan.	2	82	112	30
Ditto	2	–	–	–	–	–	–	–	–	–	–	29 „	16	137	165	28	29 „	9¾	78	101	23	1 „	3½	83	122	39
Ditto	3	–	–	–	–	–	–	–	–	–	–	29 „	15	136	164	28	29 „	12½	78	94	16	1 „	3¾	84	118	34
Ditto	4	–	–	–	–	–	–	–	–	–	–	29 „	16	126	142	16	29 „	10	73	91	18	1 „	3¼	88	126	38
Ditto	5	–	–	–	–	–	–	–	–	–	–	29 „	22	129	146	17	29 „	11¼	85	105	20	1 „	1¾	75	123	48
Ditto	6	–	–	–	–	–	–	–	–	–	–	29 „	24	138	162	24	29 „	10½	92	114	22	1 „	4¼	91	123	32
Ditto	7	–	–	–	–	–	–	–	–	–	–	29 „	23	138	169	31	29 „	10½	82	101	19	1 „	4	89	118	29
Ditto	8	–	–	–	–	–	–	–	–	–	–	29 „	19	130	159	29	29 „	15½	91	114	23	1 „	2¾	105	133	28
Ditto	9	–	–	–	–	–	–	–	–	–	–	29 „	21	129	156	27	29 „	14½	69	91	22	1 „	7	101	141	40
Ditto	10	–	–	–	–	–	–	–	–	–	–	29 „	21	138	168	30	29 „	13	94	113	19	1 „	3½	92	120	28

Rungbee, 3 October 1870.

C. B. Clarke,
Superintendent, Botanical Gardens, and in charge of Chinchona Cultivation in Bengal.

CORRESPONDENCE referred to in Note on page 82.

From *J. C. Brown*, Esq., M.D., Inspector General of Hospitals, Indian Medical Department, to the Secretary to the Government of Bengal, Judicial Department; dated Fort William, the 4th July 1871.

Sir,

IN continuation of my letter, No. 1412, dated the 30th March last, forwarding, for ultimate transmission to the Supreme Government, the report of the Chinchona Commission, I have the honour to submit, in original, the correspondence noted on the margin, relative to a mistake in paragraph 7, Appendix (E.) of the Report, which erroneously ascribes to Mr. Broughton the employment of a method of extracting alkaloid from its first rough precipitate, which is, however, essentially different from the process followed by that gentleman.

Letter dated 9th June 1871, from Mr. Broughton, with Enclosure.
This Office Memorandum, No. 1313A, dated 21st June 1871, to Surgeon Simpson, with Extract, paragraph 7, Appendix (E.).
Letter dated 26th June 1871, from Surgeon B. Simpson.

The mistake appears to have escaped correction under a misapprehension.

From *John Broughton*, Esq., Government Quinologist, to *J. C. Brown*, Esq., M.D., Inspector General of Hospitals, Indian Medical Department; dated Ootacamund, the 9th June 1871.

Sir,

I HAVE to-day received a printed copy of the proceedings of the Bengal Chinchona Commission, for which I beg to express my thanks.

In paragraph marked 7 of Appendix (E.), I find a most erroneous description of the process I use in extracting alkaloid from its first rough precipitate. On the last day of the Commission meeting, and just before my departure from Calcutta, I fully explained to Dr. Simpson his error, and requested him to describe the actual proceeding. I understood him to promise alteration, and am greatly surprised and annoyed to find that it stands in print just the same as in his draft copy. My memorandum afterwards, consequently, appears to endorse the correctness of his description.

I beg to enclose a certificate from the superintendent of the alkaloid manufactory here, in which the true proceeding is briefly pointed out. The two methods have a most essential difference.

I have the honour to request that this letter, or a copy with its enclosure, may be sent to the Bengal Government.

I HAVE read Appendix (E.) of the proceedings of the Bengal Chinchona Commission, and find that a method of proceeding is described at paragraph 7, which has never taken place at the alkaloid manufactory here. The cone is never attached to a vessel of *acidulated* alcohol, but to an empty vessel, the necessary quantity of alcohol (without acid) being found on the top of the cone. The alkaloid dissolved in the alcohol dripping through in the under vessel, is occasionally neutralised by the addition of acid and the use of test paper. When sufficient alcohol has come through, it is boiled in the under vessel until it drips free from alkaloid.

(signed) *William Davison*,
Ootacamund, 9 June 1871. Superintendent, Alkaloid Manufactory, Ootacamund.

MEMORANDUM from *K. M'Leod*, Esq., A.M., M.D., Officiating Secretary to the Inspector General of Hospitals, Indian Medical Department, to Surgeon *B. Simpson*, M.D., Civil Surgeon, Patna; dated Fort William, the 21st June 1871.

IN forwarding for an explanation the enclosed letter from Mr. Broughton, Government Quinologist, Madras, the undersigned is directed to say that the Inspector General has a recollection of a discussion between Dr. Simpson and Mr. Broughton on the last day the Commission met on the point mooted, and that his impression confirms Mr. Broughton's statement. Extract, paragraph 7 of Appendix (E.) referred to, is appended for information.

The return of the enclosure is requested.

EXTRACT, Paragraph 7 of Appendix (E.) of the Proceedings of the Bengal Chinchona Commission.

VII. The precipitate is now put into a copper vessel, which is fitted to another of the same metal, containing alcohol acidified with sulphuric acid. This alcohol is then heated, and by an ingenious contrivance the hot vapour of it is made to permeate the precipitate

over

over and over again, until the latter is supposed to be exhausted of all its alkaloid. This operation takes a considerable time, at least 48 hours being required for the exhaustion of 50 lbs. precipitate.

From *B. Simpson*, Esq., M.D., Civil Surgeon of Patna (on leave), to *J. C. Brown*, Esq., M.D., C.B., Inspector General of Hospitals, Indian Medical Department, late President of Chinchona Commission; dated Calcutta, the 26th June 1871.

Sir,

WITH reference to your office memorandum, No. 1313 A. of 21st instant, and accompanying letter* from Mr. J. Broughton, Government Quinologist, Madras, I have the honour to submit the following explanation, with the request that you will forward it to Government, appended to that gentleman's letter.

* Letter, &c. herewith returned.

If you will be good enough to refer to the Chinchona Report you will find, at page 9 of the proceedings of 20th March, that I then detailed the steps of his process to the Commission as I received them from Mr. Clarke, and that no objection was offered by Mr. Broughton to my description of it.

On the 26th March I finished my minute, and forwarded the *fair copy* (not the draft one, as he states) for his remarks, requesting him at the same time to return it as soon as possible. On the following morning (the last day of the Commission's sitting), Mr. Broughton handed the report to me in meeting, along with his own remarks. I quite remember his pointing out the error alluded to in his letter of 9th instant, but I certainly did not understand him to say that he wished me to alter the paragraph in question. I naturally thought *he* had done so in his remark, which I merely ran my eye over at the time, and then handed over along with my own minute to Mr. Clarke for embodying in the Commission's report. I regret exceedingly that my not having corrected my minute should have caused him any annoyance; but at the same time I conceive that he is in a measure to blame, as it was clearly his duty, in commenting on my minute, to point out anything which he conceived to be objectionable therein.

I may mention that paragraph 7, Appendix (E.), is a correct account of the process as performed at Rungbee, and that I am as fully aware as he is of the very essential difference between the two methods of procedure.

Enclosure 2, in No. 9.

From *R. H. Wilson*, Esq., Officiating Under Secretary to the Government of Bengal, to the Secretary to the Government of India.

Sir, Fort William, 8 May 1871.

WITH reference to the orders of the Government of India quoted on the margin, I am directed to forward herewith copy of a letter, No. 1412, dated 30th March, from Dr. J. C. Brown, President of the Chinchona Commission, submitting, with enclosures, the report of the Commission on the results of the inquiry held by them into matters connected with the experimental manufacture of quinine at Darjeeling.

Home Department, No. 645, dated 2nd February 1871.
Home Department, No. 647, dated 2nd February 1871.

2. I am to add that the Lieutenant Governor has been pleased to accept the recommendations of the Commission, and has issued orders for giving effect to those contained in paragraphs 12, 17, and 20, of the report.

3. Upon the main question as to the advisability of a local manufacture of the stem bark into chinchona alkaloid, or the alternative of packing and drying the bark for dispatch to England, the Commission pronounce no definite opinion. The cost of a manufactory on the spot is still most uncertain, and for the next season's produce the Lieutenant Governor has determined to act on the suggestion made by the Commission, and to send home for sale the bulk of the stem bark, reserving the inferior residue for the local manufactory. It has been ascertained that the manufacturing season will begin on the Rungbee plantations by the middle of October, and inquiries are being made for a competent person to undertake the work.

4. The question of working the leaves of the chinchona may, as proposed in paragraph 19 of the report, await the result of the experiments in progress on the Neilgherries.

I have, &c.
(signed) *R. H. Wilson*,
Officiating Under Secretary to the Government of Bengal.

Enclosure 3, in No. 9.

From *A. O. Hume*, Esq., C.B., Secretary to the Government of India, to the Secretary to the Government of Bengal.

Sir, Simla, 29 June 1871.

I AM directed to acknowledge the receipt of your letter, addressed to the Government of India in the Home Department, No. 1309, dated the 8th ultimo, submitting the report of the Commission appointed to inquire into the cultivation of Chinchona in British Sikkim and divers questions connected therewith.

2. I am desired, in reply, to state, that the Governor General in Council entirely approves of the orders on the report already issued by the Lieutenant Governor, and I am to request that the following remarks on the cultivation of the plant, the export of the bark to England, and the local manufacture of alkaloids, may receive his Honor's consideration.

3. As regards the first point, viz., the cultivation, it seems clearly proved that *C. Officinalis* is unsuited to the soil and climate of the Government plantations in Sikkim. It has been tried at various elevations without making any progress, and its extended cultivation would be unprofitable. His Excellency in Council, therefore, agrees in the recommendation of the Commission that its further propagation should cease. All the plants now standing should be cleared away, with the exception of those which it may be desired to retain for the supply of seeds, or for other sufficient reason. It seems advisable that vigorous efforts should be made to propagate *C. Calisaya* and *C. Pitayensis*, which species yield a larger quantity of crystallisable alkaloid than *C. Succirubra*, and which have a greater marketable value in Europe. The officers in charge of the gardens should also be directed to exert themselves to obtain for trial any other species or varieties, the yield of which in alkaloids appears likely to be superior to that of *C. Succirubra*. At the same time it is not intended that the further cultivation of this latter species should be interrupted. On the contrary, all healthy seedlings and cuttings now in stock should be planted out, and further supplies of plants should still continue to be raised from seed taken from sound and healthy trees. In connection with the subject of this paragraph, I am to invite the attention of the Lieutenant Governor to paragraph 4 of the Despatch* from the Secretary of State, copy of which is forwarded herewith.

* No. 28, dated 4th April 1871.

4. His Excellency in Council is not disposed, without further experiment and more careful inquiry, to concur in the opinion expressed by Mr. McIvor regarding the destructive nature of the disease which has attacked some of the plants at Rungbee—a disease which is shown to have existed in the plants originally sent up from the Neilgherries as stock for the Sikkim plantations. Disease doubtless exists, and, unless care is taken, the results may prove serious, but there appears to be no valid reason for apprehending anything like the general failure predicted by Mr. McIvor; nay more, the Governor General in Council hopes to hear that in the new plantations stocked from healthy *seedling* plants, the disease will occur more rarely, and there is reason to expect that even in the older plantations it is gradually disappearing; and that the opinion of the Commission, that the vast majority of the plants are likely to last at least seven or eight years, will prove to be well within the facts. In order, however, that one test may be applied to the different opinions expressed on this point—a test which will be peculiarly valuable as being founded on that portion of the plantation where the disease is likely to be most extensive and persistent—his Excellency in Council would be glad if his Honor the Lieutenant Governor would be good enough to issue orders that, if the 140 trees which still remain untouched from among those planted out in 1864, none may be cut unless it should be found absolutely necessary to thin them; and that a half-yearly report may be submitted showing the progress and condition of these trees, whether disease is increasing among them or not, and any other particulars of interest regarding them.

5. The Governor General in Council concurs in the Lieutenant Governor's decision regarding the export of bark. For some years to come the only possible method of keeping a check on expenditure, and of ascertaining the real commercial value of this experiment, will be to export annually a considerable proportion of the best bark produced, and sell it for the highest price it will fetch in the open market. I am to request further, that his Honor will favour the Government of India with the earliest intimation of the financial results of the exportation now authorised in a statement exhibiting the estimated cost of production, the actual cost of picking, drying, and packing the bark, the cost of transport to Calcutta, freight, shipping, and landing charges, brokerage, and other charges in England, and, *per contra*, the price realised.

6. In regard to the remaining point, local manufacture, his Excellency in Council would be glad to be informed of the results of the inquiries being made by his Honor for a skilled and competent person to undertake the execution of systematic experiments at Rungbee.

7. The Governor General in Council is desirous that these experiments may be proceeded with energetically, and that the process advocated by Dr. Simpson, as well as that

of Mr. Broughton, may receive full and fair trial, and their respective merits be accurately weighed. Mr. Broughton's process, which is already in operation at Rungbee, should receive further trial under skilled supervision, and Mr. Gammie, the head gardener in charge, might be directed to prepare a considerable quantity of alcohol from hill maize, in order to ascertain what it costs when made on an extensive scale. In the trial of Dr. Simpson's and Mr. Broughton' sprocess, a quantity of, say, 2,000 lbs., of fresh bark might be carefully worked up under each system, and an accurate comparison of the cost and results in each case instituted.

8. These experiments should be conducted with the greatest care under skilled supervision, and I am directed here to invite his Honor's attention to the serious result of the absence of such skill in the experiments first made at Rungbee, as shown by the analyses made by Drs. Macnamara and Simpson of the so-called "morphous quinine," produced under Mr. Clarke's orders. His Excellency in Council cannot refrain from expressing the grave dissatisfaction with which he finds that a drug supplied from a State manufactory to the medical stores for use in hospitals was proved to contain upwards of 10 per cent. of metallic copper. The Government of India is informed that Mr. Clarke received warnings that the alkaloid produced at Rungbee apparently contained copper, and he fails to find any trace in the papers before him of Mr. Clarke's having taken steps to ascertain the truth; and the Governor General in Council is, accordingly, bound to say that, if such be the case, Mr. Clarke has incurred a deep and serious responsibility.

9. As regards the supposed discouragement of private enterprise which the Darjeeling Chinchona Association seem to believe involved in any further extensions of the Government plantations, I am desired to remark that in this, as in similar cases of the introduction of exotic staples, the first step towards enlisting the active coöperation of private capitalists generally is to prove by actual operations on a large scale that their cultivation will really be remunerative. Until this has been done no effort that the Government may make to establish that cultivation thoroughly can, if rightly considered, be held to affect private enterprise injuriously.

10. Considered only in the light of this broad principle generally applicable to the cases of exotic staples, it is manifest that the time has not yet come for Government to relax its exertions in the matter of chinchona cultivations. These very papers show that two of the most practised experts in chinchona are of opinion that the Sikkim plantations are dying rapidly out, and will, in a few years, be altogether extinct. His Excellency concurs with the Commission in considering these gentlemen in error; but should their conjectures unhappily prove well-founded, the Government would probably select other sites and open out other plantations; in a word, would persevere until chinchona cultivation was a success, and until it had secured for the fever-stricken millions of India the inestimable blessing of cheap quinine.

11. Unfortunately the field is too wide to be adequately occupied for many years to come either by Government or private individuals, or both, let both labour as they may. From the first Government has encouraged, and will always encourage, private plantations; seeds and plants it freely gives, and throws open to inspection its own plantations, and does its utmost to make available to all experience gained in the work by its own officers; but the Government feels that it could not, without the abnegation of a vitally important duty, leave solely to private enterprise the further prosecution of those measures necessary to secure to the people abundant and cheap supplies of the "only efficient specific for the most deadly of all Indian maladies."

12. I am finally desired to state that the Governor General in Council appreciates the satisfactory manner in which the president and members of the Commission have discharged the important duty confided to them.

I have, &c.
(signed) *A. O. Hume,*
Secretary to the Government of India.

— No. 10. —

(No. 65—Revenue.)

From the Secretary of State for India to the Government of India.

My Lord, India Office, 14 September 1871.

1. I HAVE received, and considered in Council, the Despatch of your Excellency, dated No. 3 (Agriculture), July 7th 1871, forwarding the Report of the Commission appointed to inquire into various matters connected with the cultivation of chinchona in British Sikkim. The course recommended by the Commissioners, with reference to the bark harvest, is quite in accordance with the opinion expressed in my previous Despatch, dated April 4th (No. 28), and your approval

of their recommendation has my concurrence. A final decision on the question of manufacturing on the spot cannot be formed until you are in possession of exact data respecting the expense of the various courses suggested for experiments.

2. The discovery of a large quantity of copper in the bark preparation, which was intended for use in hospitals and dispensaries, is most discreditable to all who were connected with the Sikkim plantations, and it shows the absolute necessity for entrusting chinchona cultivation to one who is thoroughly competent, and who has had previous training as a quinologist. Dr. Simpson, who, as I am informed by Dr. Hooker, has studied in the laboratory of one of the most eminent quinologists on the Continent, appears to be the only officer in Bengal who has had the advantage of such special training. It is impossible to overrate the importance of entrusting such delicate and difficult work to a competent person, and I trust, therefore, that it will be in the power of the Lieutenant Governor to make an arrangement by which Dr. Simpson may be entrusted with the superintendence of the manufacture, without injury to his prospects, or inconvenience to the public service.

3. I concur with your Excellency's Government in the views you have expressed respecting the encouragement of private enterprise. It is the duty of the Government, in the first place, to secure abundant and cheap supplies of the febrifuge to the people of India. The encouragement of private enterprise, though a very desirable measure in itself, must always be looked upon as subordinate to the main object of Her Majesty's Government, in having undertaken the introduction of chinchona cultivation into India.

I have, &c.
(signed) *Argyll.*

— No. 11. —

(No. 1—Agricultural.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Fort Willliam, 5 January 1872.

om the Govern-
nt of Bengal,
ted 9th November
71.
the Government
Bengal, dated 27th
cember 1871.

We have the honour to forward herewith, for your Grace's information, copy of the papers noted in the margin, being a Report from the Government of Bengal on the state of the Chinchona Plantations at Rungbee, and our orders thereon. We think your Grace will agree with us in considering the Report very encouraging.

We have, &c.
(signed) *Mayo*, &c.

Enclosure 1, in No. 11.

From *C. Bernard*, Esq., Officiating Secretary to the Government of Bengal, in the General Department, to the Secretary to the Government of India.

Sir, Fort William, 9 November 1871.

In submitting the usual half yearly Report on the Government Chinchona Plantations, I am directed to state that the Lieutenant Governor has within the last few days visited Rungbee, in company with the superintendent, Dr. King, and I am to offer an expression of his Honor's opinion on the general state of the chinchona gardens.

2. Mr. Campbell was indeed an unscientific observer; but as such he is glad to say that the *succirubra* plantations, stretching as they do for seven or eight miles down the valley, appeared to be exceedingly flourishing. The three and four year old trees were everywhere, save on a few patches of marshy land, healthy and luxuriant; these trees appear to make from 3 to 7 feet in height each year, and the-four-year old trees range from 15 to 30 feet in height. Their leaves, their bark, and the general appearance of the trees, are certainly as healthy and sound as any plantation Mr. Campbell can recollect to have seen. There seems little ground for fearing that the canker, observed in the trees last cold season, has as yet done any permanent harm; and the trees which may have been more or less cankered, renew themselves so quickly that the immense majority of opinion is that the cultivation will last. The success of the *succirubra* trees was not, the Lieutenant Governor was glad to observe, confined to the Government plantation; for

for much of the private plantation on the north slopes of the Rungbee valley appeared to be in very good case.

3. The *Chinchona officinalis* is fast disappearing from the plantation; the few trees of this species which are left do not thrive, and nothing has occurred since last cold season to shake the opinion that this variety of chinchona cannot be usefully propagated at Rungbee. Dr. King is, however, trying a few small experimental patches of *Chinchona officinalis* on one or other of the northern slopes. The tree has been tried at many elevations, and as yet it has not succeeded anywhere at Rungbee. There are such wide* differences of climate, of altitude, and of rainfall, at different parts of the Rungbee estate, that *Chinchona officinalis* may be said to have had a full trial at Rungbee. At the same time, though this variety has failed at Rungbee, Mr. Campbell would mention that he saw some acres of flourishing *Chinchona officinalis* at the Tukvar tea plantation on the northern slopes of a spur of the Darjeeling hill.

4. The *Chinchona calisaya* plantations on the lower and warmer slopes of the Government garden at Rungbee appear very thriving. The leaf of this species is small, and the tree is not so luxuriant looking as the *succirubra*; but over a considerable area the young trees of this *Chinchona calisaya* average over 12 feet in height.

5. The ipecacuanha plants are doing well, and the gardener (Mr. Gammie) has succeeded in reproducing several scores of plants by cuttings from the roots of the few plants which survived out of the batch which came last year under the Lieutenant Governor's directions. The Commissioner (Colonel Haughton) is about to select, in concert with Dr. King, a warm shady spot in the terai suitable for an ipecacuanha garden.

6. Everything is ready for extending the plantation, more especially the calisaya species on the rich lands lower down the valley. So far as the Lieutenant Governor was able to judge, the plantation, its roads, houses, nurseries, and general arrangements, are in good order. The Nepalese coolies who are employed on the garden appear to be industrious and comfortable.

7. There still remains the difficulty as to the best agency for, and the best method of, extracting the alkaloids from such bark as the thinnings of the older plantations may from time to time yield. As the Lieutenant Governor has represented in a previous letter, most of the good bark will, under present arrangements, be sent to Europe this year. Meanwhile, Dr. King is engaged in extracting alkaloids from 100 lb. of bark by the boiling (Mr. Broughton's) process, and from a second 100 lb. by the steeping process. The results of these experiments will be duly reported; and arrangements will be made to procure an analysis of the products at the several stages of each process.

8. Setting aside the question of extracting the alkaloids, a matter which will have to be solved during the next two or three years, the Lieutenant Governor considers that the Rungbee plantation of *Chinchona succirubra* and *Chinchona calisaya* promises to be a success, if the trees do as well during the next 10 years as they have done during the last 12 months. His Honor has not deemed it necessary to trouble his Excellency the Viceroy in Council with any repetition of the statistics of area under chinchona, number of trees, or of the cost of the garden; he has merely laid before the Government of India a short account of the impression made by his recent visit to the Rungbee plantations. He has also asked Dr. King to arrange to make small experimental plantations on the lower slopes of the hills, and in other places where varieties of climate may be found.

I have, &c.
(signed) *C. Bernard,*
Officiating Secretary to the Government of Bengal.

REPORT on Cultivation of Chinchona at Rungbee for the Half-year ending 30th September 1871.

1. THE rainy season just ended has been an average one; the weather therefore calls for no special remark.

2. During the period under review, 147,000 plants of *C. succirubra* and 42,000 of *C. calisaya* have been planted out in the permanent plantations, giving an increase of area under cultivation of 156 acres. All vacancies in the older parts of the *succirubra* plantation have also been filled up.

3. In

* The Rungbee bungalow at the top of the garden is about 5,000 feet above the sea; its rainfall is 200 inches a year. Rishap, towards the bottom of the garden, is less than 2,500 feet above the sea, and its rainfall is 125 inches in the year. There is also a very wide difference between the mean temperature of the two places. Down the valley again, beyond Rishap, are slopes where the altitude is still lower and the temperature still higher.

3. In accordance with the recommendation of the Chinchona Commission and the orders of Government, no further attempt has been made to extend the cultivation of C. *officinalis* at Rungbee itself, as repeated trials at every possible elevation have shown that this species will not grow there. Great part of the area originally planted out with *C. officinalis* has been replanted with *C. succirubra*, the former species having died out. It is proposed to try small experimental patches of this valuable species at different parts of the chinchona reserve, and I am not without hope that the northern pace of the Sitong ridge will prove suitable for it.

4. As will be seen by the appended returns, the nursery beds are well stocked with young plants of both *succirubra* and *calisaya*. As favourable weather occurs, these will be transferred to permanent plantations. Propagation of *succirubra* by cuttings has been abandoned for more than a year, as seed has been available in any quantity. The supply of *calisaya* seed is still limited, and it is necessary therefore to rely partly on increase by cuttings. Every seed yielded by the older trees of this species is most carefully preserved, and no effort is being spared to insure the rapid increase of this the most valuable of the medicinal chinchonas, which (when the plants become established after their final transplantation) experience shows to answer extremely well here.

5. Of the 29 plants of *C. pitayensis* (a species previously not in cultivation at Rungbee) received from England, I regret to say 13 have died since the issue of the last half-yearly report, so that now only 16 remain. These, however, look healthy, and no more deaths are anticipated. The loss of such a large proportion as half the importation, though much to be regretted, is not to be wondered at, as plants brought from England rarely do much better.

6. The older plantations are looking very well indeed, and I do not see that the disease to which the attention of the Chinchona Commission was called is doing much harm or is much to be feared. I shall, however, be better able to report upon the matter when a year shall have elapsed since the date of the inspection by the Commissioners. Their visit took place during the month of March last, and it was predicted by one of the gentlemen examined that within a year from that time "100,000 plants of from four to six years' growth would die." Up to the present time none have begun to do so by reason of this dreaded disease or canker, though some have died from other causes.

7. The usual returns are appended.

TABLE showing the Number and Distribution of Chinchona Plants in the Government Plantations at Darjeeling on the 1st October 1871.

Names of Species of Chinchona.	Number in permanent Plantation.	Number of Stock Plants for Propagation.	Number of Seedlings or rooted Cuttings in Nursery Beds for permanent Plantations.	Number of Rooted Plants in Seedling and Cutting Beds.	Number of Cuttings made during the Month.	Total Number of Plants, Cuttings, and Seedlings.
C. succirubra - - - -	1,380,715	None.	339,000	280,285	- -	2,000,000
C. calisaya - - - -	75,000	10,000	50,000	100,000	- -	235,000
C. micrantha - - - -	29,667	None.	None.	None.	- -	29,667
C. officinalis and Varieties - -	100,000	"	"	"	- -	100,000
C. pahudiana - - - -	5,092	"	"	"	- -	5,092
C. pitayensis - - - -	None.	16	"	"	24	40
TOTAL - - -	1,590,474	10,016	389,000	380,285	24	2,369,799

J. Gammie, Head Gardener in charge,
Chinchona Plantations, Darjeeling.

TABLE showing the Growth of Chinchonas in the Darjeeling Plantations during the Six Months ending 30th September 1871.

Names.	Numbers.	3rd Plantation (Rishap). Altitude 2,000 Feet.					4th Plantation (Runghu). Altitude 3,332 Feet.					5th Plantation (Runghu). Altitude 2,556 Feet.				
		Date of Planting 1867.	Height in Inches on 1st January 1868.	Height on 31st March 1871.	Height on 1st October 1871.	Growth during Six Months.	Date of Planting 1864.	Height in Inches when Planted.	Height on 31st March 1871.	Height on 1st October 1871.	Growth during Six Months.	Date of Planting 1864.	Height in Inches when Planted.	Height on 31st March 1871.	Height on 1st October 1871.	Growth during Six Months.
C. succirubra	1	29th March	29	179	204	25	29th July	5	220	267	47	15th October	6	288	302	14
Ditto	2	29th „	30	190	214	24	29th „	6	195	248	53	15th „	10½	218	225	7
Ditto	3	29th „	37	190	209	19	29th „	7½	217	217	–	29th July	5½	215	223	8
Ditto	4	29th „	24	206	228	22	15th October	10½	210	249	39	29th „	3	212	217	5
Ditto	5	29th „	37	199	226	27	29th July	4¾	182	211	29	29th „	5½	257	288	31
														cut for bark.	young shoot.	
Ditto	6	29th „	30	217	238	21	29th „	4½	128	163	35	29th „	3	–	75	66
Ditto	7	29th „	27	154	177	23	29th „	3½	229	259	30	29th „	4	295	312	17
Ditto	8	29th „	30	206	226	20	29th „	2	170	214	44	29th „	4½	218	240	22
Ditto	9	29th „	29	160	166	6	29th „	3	164	216	52	29th „	4	234	244	10
Ditto	10	29th „	25	128	162	34	29th „	8	204	236 top gone.	32	29th „	3	216	220	4
C. micrantha	1	16th „	17	126	150	24	15th October	9	220	160	–	29th „	5½	152	157	5
Ditto	2	16th „	19	177	195	18	29th July	6½	182	226	44	29th „	6	145	160	15
Ditto	3	16th „	44	183	198	15	29th „	3	172	194	22	15th October	6	186	220	34
Ditto	4	16th „	46½	181	197	16	29th „	2½	188	dead.	–	29th July	4½	171	172	1
Ditto	*5	16th „	45½	188	211	23	15th October	3	165	179	14	15th October	5½	190	205	15
C. calisaya	1	29th June	25	184	223	39	29th June 1867	*15½	109	125	16	1st January 1868	2	121	141	20
Ditto	2	29th „	16	184	216	32	29th „ „	9½	115	125	10	1st „ „	3½	133	165	32
Ditto	3	29th „	15	177	193	16	29th „ „	12½	107	123	16	1st „ „	3¾	135	178	43
Ditto	4	29th „	16	159	187	28	29th „ „	10	98	120	22	1st „ „	3½	141	168	27
Ditto	5	29th „	22	158	188	30	29th „ „	11½	117	149	32	1st „ „	1¾	137	174	37
Ditto	6	29th „	24	182	211	29	29th „ „	10½	122	133	11	1st „ „	4¼	147	149	2
Ditto	7	29th „	23	192	221	29	29th „ „	10½	111	138 top gone.	27	1st „ „	4	130	168	38
Ditto	8	29th „	19	174	194	20	29th „ „	15½	122	43	–	1st „ „	2¾	147	188	41
Ditto	9	29th „	21	169	196	27	29th „ „	14½	99	125	26	1st „ „	7	149	172	23
Ditto	10	29th „	21	183	210	27	29th „ „	16	118	144	26	1st „ „	3½	127	121	– top dead.

* Heights on 1st January 1868.

G. King, M.B.,
Superintendent, Botanical Gardens, and in charge of Chinchona cultivation in Bengal.

Enclosure 2, in No. 11.

From *J. Geoghegan*, Esq., Officiating Secretary to the Government of India, to the Officiating Secretary to the Government of Bengal.

Sir, Fort William, 27 December 1871.

I AM directed to acknowledge the receipt of your letter, No. 3357, dated the 9th ultimo, reporting on the general state of the Government chinchona plantations near Darjeeling, and in reply to state that the Governor General in Council considers the report very satisfactory, and hopes that no pains will be spared to extend, as far as possible, the culture of a plant which produces a medicine more certain in its effects than perhaps any other, and one that is of almost universal application in India.

I have, &c.
(signed) *J. Geoghegan*,
Officiating Secretary to the Government of India.

— No. 12. —

(No. 11—Revenue.)

From the Secretary of State for India to the Government of India.

India Office, 22 February 1872.

1. I HAVE to acknowledge the receipt of your Excellency's Despatch, dated 5th January (No. 1) 1872, forwarding papers on the state of the chinchona plantations at Rungbee.

2. I learn with satisfaction that the Lieutenant Governor of Bengal was favourably impressed when he personally inspected the plantations, and that he considers them to be in a thriving and flourishing condition. The transmission to England of the best bark for sale in the market is a measure which has already received my approval; but it is very important that the best method of utilising the febrifuge in India should be ascertained; and I trust that Dr. King will be instructed to continue to give his best attention to this branch of the subject. While the sale of East India bark in the London market will establish its name, and thus assist the efforts of private planters, it should always be borne in mind that the main object of the introduction of chinchona cultivation was to supply the febrifuge, in a cheap and easily accessible form, to the people of India, and this can only be secured by its manufacture on the spot.

I have, &c.
(signed) *Argyll.*

— No. 13. —

(No. 10—Agriculture.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Simla, 5 August 1872.

WE have the honour to forward herewith copy of a letter from the Government of Bengal, No. 2458, dated the 20th ultimo, and of its enclosure, requesting that an analysis may be made of some red chinchona quill bark (sent herewith in two packets). We beg that the request of the Government of Bengal may be complied with, and that we may be informed of the result.

We have, &c.
(signed) *Northbrook*, &c.

Enclosure in No. 13.

From *Thomas Jones*, Esq., Assistant Secretary to the Government of Bengal, to *A. O. Hume*, Esq., C.B., Secretary to the Government of India, Department of Agriculture, Revenue, and Commerce; Calcutta, the 20th July 1872.

I AM directed to forward herewith two packets of red chinchona quill bark from Rungbee, received from the superintendent of the Botanical Gardens in charge of the chinchona cultivation in Bengal, and to solicit that, with the permission of his Excellency the Governor General in Council, they be transmitted to the Secretary of State for India for analysis, and that the result may be communicated to this office.

— No. 14. —

(No. 11—Agriculture.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Simla, 5 August 1872.

IN continuation of the correspondence on the subject of the local manufacture of quinine at Rungbee, ending with your Grace's Despatch of the 22nd February last, No. 11 (Revenue), we have the honour to forward, for your Grace's early and favourable consideration, copy of a letter from the Government of Bengal, No. 2443, dated the 22nd ultimo, and of its enclosure, recommending the selection and appointment in England of a competent analytical chemist and quinologist to superintend and direct the operations it has been decided to commence.

2. In your Grace's Despatch of the 14th September 1871, No. 65 (Revenue), Dr. Simpson was suggested to us as the most competent person in India to whom the operations might be entrusted. Concurring in your Grace's estimate of Dr. Simpson's qualifications, we offered him the appointment on a salary of 1,000 rupees a month, conditionally on his residing at Rungbee (an obviously essential arrangement), and devoting his whole time and attention to the work. Dr. Simpson, however, has declined the appointment on these terms, and we beg, therefore, in forwarding the letter from the Government of Bengal, to recommend that the request made by his Honour the Lieutenant Governor may be complied with at as early a date as possible.

3. During the last cold season very nearly 40,000 lbs. of dry bark were obtained merely in the natural course of thinning parts of the plantations. During the next cold season it is expected that at least 200,000 lbs. of green bark will become available from similar sources for the manufacture of alkaloids, and, for some years to come the supply of bark will yearly increase. There will always, therefore, be abundant material to feed the manufacture.

4. Having regard to the vital character of the interests at stake, and the national importance of being able to place a really cheap and efficient febrifuge in every druggist's shop of every bazar in India, and considering also the delicate and difficult nature of the problems that the Government quinologist will have to solve before this result can be attained, we think it desirable that the gentleman selected should be a person of undoubted scientific eminence as an analytical chemist, versed, if possible, in the specialties of the European methods of manufacture of quinine, and certainly possessed of such high general intelligence as to enable him not only to master readily the complex conditions he will have to deal with, but also to modify known methods, or originate new ones in a manner that may secure the production of a maximum amount of the drug at a minimum of cost.

5. To arrest the deadly ravages of the low fevers prevalent throughout India, even to palliate the suffering and misery that they yearly entail on millions of

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the population, it is not sufficient merely to make quinine; ti is absolutely necessary to make it in enormous quantities and at a very low price. Great improvements have been, and are being made, in the rearing of the trees. Ten trees can now be planted for what one cost in former years, and still greater economy in this direction may be looked for. It remains now to establish a cheap and efficient manufacture, to work out a system far more economical than any yet known, by utilising materials locally available, and by creating, in fact, a process absolutely adapted to surrounding conditions.

6. We have said enough, we trust, to justify our belief that no mere quinologist or analytical chemist will be competent to achieve the end we have set before us, but that it will be necessary for our purposes to secure the services of a gentleman who combines a thorough knowledge of analytical and organic chemistry with considerable general abilities, great industry and energy, inventive capacity, and abundant fertility of resource.

7. We leave to your Grace to determine the salary that should be attached to the office; but we may remark that the work to be performed, the scientific direction of a great and important manufacture, and the prosecution of interesting scientific researches, is of a nature to attract even the most eminent among the rising men of science. A free residence, surrounded by beautiful scenery and in an excellent climate, will be provided. And we think that, under these circumstances, it will probably be found that a salary of 600 *l.* a year, rising by yearly increments of 100 *l.* to 1,200 *l.*, coupled with advantages as to pension and leave similar to those conceded to the officers of the Education Department, would suffice to secure the services of one of the very best men available in Europe.

We have, &c.
(signed) *Northbrook*, &c.

Enclosure in No. 14.

From *J. Ware Edgar*, Esq., Officiating Junior Secretary to the Government of Bengal, to the Secretary to the Government of India, Department of Agriculture, Revenue, and Commerce.

Sir, Calcutta, July 1872.

WITH reference to Under Secretary Mr. Geoghegan's letter, No. 266, dated the 29th June 1872, I am directed to state that Dr. Simpson has declined to accept the appointment of Quinologist, and to submit herewith a copy of a memorandum,* drawn up by the Superintendent of the Botanical Gardens, on the qualifications desirable in the person who may be selected in England for the post, and on other points connected with the appointment.

* Dated 9th July 1872.

2. Dr. King in another communication suggests that for a part of the year, while the plantation is young, the quinologist could be employed as an analyser of soils or vegetable products, as recently the want of such an analyser was felt in the opium lands when the blight was under inquiry. I am to add that the Lieutenant Governor recommends the arrangement proposed by the Superintendent of the Botanical Gardens, and would propose that the chemist to be employed should be "Analytical Chemist to the Government of Bengal," and available for any work, but should have the best qualifications for the duty of quinology which it is possible to obtain, that being his primary and chief duty.

I have, &c.
(signed) *J. Ware Edgar*,
Officiating Junior Secretary to the Government of Bengal.

MEMORANDUM.

THE duties to be performed by a quinologist at the Rungbee chinchona plantation divide themselves into those of (1) *manufacture* and (2) *analysis.*

Manufacture.—The quinologist will have to conduct the extraction from the bark of the medicinal alkaloids in a *rough amorphous form* as practised on the Nilgiris, or to carry the process farther, as is done by quinine manufacturers at home, and to turn out the alkaloids in a separate and pure form as quinine chinchonidine, &c. To prepare merely the amorphous alkaloid, the services of a highly accomplished chemist are not absolutely necessary. Mr. Broughton (the Nilgiri quinologist) has elaborated and now follows on the Nilgiris a process which could be worked by a man of moderate chemical acquirements. Neither to prepare pure quinine are great chemical acquirements necessary. Its manufacture, however, is a speciality, and the great success of such chemists as the Messrs. Howard is owing to the knowledge by them of certain details of manufacture which they have arrived at in the course of long experience, and which they naturally retain as secrets, none but members of their firm being admitted (I believe) to the rooms where the more delicate processes are carried on. The services, therefore, of a chemist who will be able to make quinine as well as these great and almost only makers in London, are not likely, I fear, to be obtained for Rungbee.

Analysis.—Besides the mere manufacture, the quinologist should be able to conduct with accuracy and facility extensive series of analyses of bark, with the view of putting the cultivation of chinchona as a crop on a really sound and scientific footing. Such analyses should be directed to the discovery of the variety of bark which in the climate of Sikkim naturally yields most alkaloid, and at what seasons, and under what circumstances of soil, exposure, elevation, temperature, and cultivation (including manuring) the amount of alkaloid available for extraction is or can be increased.

In order to show that these are not fanciful problems, I may mention that Mr. Broughton has been able to demonstrate the extreme variability as to yield of alkaloids of the bark *of different varieties of the same species of chinchona.* His researches prove that plants which are botanically undistinguishable, and which when growing side by side appear to the most careful observer identical, yield bark varying as to richness in alkaloid in a most remarkable way. Whereas bark taken from plants of the ordinary type of *Chinchona officinalis* yields from 5 to 8 per cent. of alkaloid, he has been able to pick at a variety yielding the astonishing amount of 13 per cent. He has also proved by repeated analyses the effect of shade of season, of exposure, and of manure on the yield of alkaloid, and has indeed, in his papers published by Government and by the Royal Society of London, gone some way to reduce the production of quinine on the Nilgiris to a science. Nothing of this sort has hitherto been attempted for the Sikkim chinchonas. Mr. Brougton's experience could doubtless to some extent be turned to account in Sikkim, but as the natural and physical conditions of that district and of the Nilgiris are unlike in many respects, I believe a separate series of quinological observations for the Sikkim plantations to be very desirable, and the chemist appointed to these plantations ought, in my opinion, to be perfectly qualified to conduct such, and ought to be instructed to consider their conduct as in no way a secondary or subsidiary part of his duties.

For this kind of work the fittest man is one who has a thorough knowledge of organic chemistry, and who has had experience in the performance of organic analysis and experiment.

Apparatus.—My predecessor, Mr. Clarke, obtained a complete set of apparatus for the extraction of the rough alkaloid by Mr. Broughton's process. This is all in working order, with the exception of a large hydraulic press, which, although made by Mr. Clarke's orders, did not arrive at Rungbee until the manufacture of alkaloid there had been suspended by order of Government, and which has consequently not been erected. It can, however, speedily be put up if wanted. There is also at Rungbee a small supply of the chemicals used in Mr. Broughton's process. I myself would not be inclined to use the copper cauldrons got by Mr. Clarke for this process, but until the quinologist who may be appointed has settled what manufacturing process he is to follow, I would not venture to recommend the purchase of any more manufacturing apparatus.

For carrying on the scientific work above indicated under the heading *Analysis*, a complete laboratory would have to be fitted up. The materials for this could only be obtained in Europe, and ought to be selected by a practical chemist.

Location of Quinologist.—The quinologist should undoubtedly live on the plantation. For conducting the manufacture and for the more scientific work this is alike desirable. Dry bark would yield say 5 per cent. of alkaloid, but alkaloid is best extracted from *green bark, which weighs three times as much as dry bark.* It is obviously of great importance that the green bark have to be carried as short a distance as possible. If the factory were to be established at Darjeeling, for instance, wet bark would, from the part of the plantation nearest that station, have to be carried 13 miles, and from the part farthest from Darjeeling, about 20 miles, and this too over roads where coolie carriage is alone

practicable on the Nilgiris. Mr. Broughton's factory was originally established at Ootacamund; but as the first plantation that came into bearing was that of Neddiwathun, 18 miles distant from Ootacamund, the cost of carriage was found so enormous that the factory was very quickly removed to the plantation of Neddiwathun, and Mr. Broughton's process was in full operation there under the direction of a resident European during my visit in April last. Mr. Broughton himself lives, and has his scientific laboratory, at Ootacamund, within half a mile's distance of the large Government plantation of *Chinchona officinalis*. He, however, visits Neddiwathun weekly. Manufacturing operations are soon likely to be begun on the large Dodabetta plantation, which I have just mentioned as being half a mile distant from Mr. Broughton's present reidence.

For the scientific observations the quinologist ought certainly to live amonst the trees, and to spend much time moving about amongst them. Mr. Broughton has, I believe, all along done this, for until lately he lived in the Neddiwathun plantation.

G. King,
Calcutta, 9 July 1872. Superintendent, Botanical Gardens.

— No. 15. —

(No. 13—Agriculture.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Simla, 5 August 1872.

In continuation of our Despatch of the 28th July 1871, No. 5 (Agriculture and Horticulture), we have the honour to forward herewith copy of Dr. King's Report on the Cultivation of Chinchona in Bengal for 1871-72, together with the Resolution of His Honor the Lieutenant Governor thereon. We address your Grace separately by this mail on the subject of the engagement of a competent quinologist for employment under the Government of Bengal.

We have, &c.
(signed) *Northbrook*, &c.

Enclosure 1, in No. 15.

Tenth Annual Report on the Government Chinchona Plantations in British Sikkim, by *George King*, Esq., M.B., Superintendent, Botanical Garden, and in charge of Chinchona Cultivation in Bengal.

I received charge of the chinchona cultivation in Sikkim from my predecessor, Mr. C. B. Clarke, on the 10th July 1871. Since doing so I have had an opportunity of visiting the Government chinchona plantations, both on the Nilgiris and in Ceylon, and, by the courtesy of the proprietors, many of the private plantations as well.

2. *Natural Features of the Rungbee Valley.*—As none of the reports of my predecessors contain a description of the natural features of the Rungbee Valley, where the chinchona cultivation is conducted, it may be of advantage to the better understanding of what is to follow if I begin this report by giving a short sketch of these.

3. The Rungbee Valley* runs almost due west and east. At its western end it is shut in by a ridge of mountain more than 6,000 feet high, in which the Rungjo stream has its origin. By its eastern extremity, which opens into the valley of the Teesta, the Rungjo stream escapes to join its waters with those of that river. Compared to its length, which is only about 16 miles, it is a wide valley, measuring from crest to crest probably little less than four miles, but contracting towards its mouth. The southern side of the valley is formed in its upper (western) half by a high range continuous with Sinchul, and not much inferior to it in height,† the slopes of which above the zone of cultivation are covered with a dense virgin forest of most luxuriant growth. About half way down the valley, at a point called Mungoot, this high range curves away to the south-east, throwing out a low ridge called the Mungpoo Spur, which, running in an easterly direction, forms the southern side of the Rungbee Valley along its lower (eastern) half. In the valley intervening between this Mungpoo Spur and the main ridge, runs the Ryang stream. The ridge along the north of the Rungbee Valley is, on the other hand, low and pretty nearly cleared of forest. Its western part is indeed occupied by the plantation of the Pomong Chinchona Association, which is separated from that of Government by the Rungjo stream.

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* The valley ought properly to have been named after the Rungjo, which is its chief stream; the Rungbee is but a small tributary of the Rungjo. The smaller stream has, however, been allowed to give its name to the valley, and it is too late now to alter the arrangement.

† The highest peak of Sinchul rises to 8,600 feet above the sea.

The Government plantation forms an irregular belt at the bottom of the valley and along its southern side, and has therefore a northern exposure. This belt extends from the margin of the Rungjo stream upwards along the slopes to a height above the sea of about 3,500 feet. Chinchona cultivation was first begun by Government at the western end of the valley, on the piece of ground known as Rungbee Proper, and has gradually been extended eastward, or down the valley. The eastern portion covers the ground locally known as Rishap, and, as will be subsequently explained, the extensions now being made are still eastward of Rishap.

4. The climate of the Rungbee Valley is peculiar. Being so completely shut in upon all sides, it is protected in a striking degree from wind, and up to the higher limits of the chinchona belt the air is rarely stirred by even the gentlest breeze, a state of things in striking contrast to that obtaining in the Nilgiris, where in exposed places great and permanent injury is done to the chinchona plants by the high winds. At the lower levels frost is completely unknown, and the climate is indeed sub-tropical; while on the higher southern and western slopes frost, and even snow, are the order of the day during the cold season. Occasionally heavy hail-storms pass over the valley, tearing to pieces the thin broad leaves of the red bark trees. The mischief thus done is, however, rapidly recovered from. The rain-fall is heavy, but not equally so in all parts of the valley. The warm vapour-laden air passing up from the plains has its moisture condensed into clouds by the cool, high, forest-clad ridges that form the northern and western boundary of the valley, and for a great part of the year the higher part of these are enveloped in drizzling fog. Even at the driest season one is struck by the amount of mist which, condensed at the higher elevations, almost every evening creeps well down their slopes, while the whole of the opposite side and of the lower part of the valley continue quite clear. During the monsoon the rainfall on these high southern ridges must be very great. Some idea of its extent may be formed from the fact that at a bungalow standing in the south-western corner of the valley, at an elevation of only 5,000 feet, and thus far below the crest, the rainfall for the year averages about 200 inches. At lower levels in the valley the rainfall is very much less, and no part of the Government chinchona cultivation is exposed to such a downpour. For example, at the Rishap plantation hut (2,000 feet above the sea), where a rain gauge has been kept for some years, the average is shown to be about 120 inches, and as the mouth of the valley and the Teesta are approached, the climate becomes very much drier. The northern side of the valley being itself comparatively low and cleared of forest, and being besides beyond the influence of the high ranges, shares in the drier climate.

5. Now the greater part of the Government plantation lies under the high southern ridge just described, the drainage water of which consequently passes through it on its way to join the Rungjo. This drainage is carried off by numberless streams, most of which originate a good way up the slopes, but much of it also passes underground for a great part of its course, and comes to the surface only a short way above the Rungjo. Moreover, on becoming superficial, a great deal of this water, scorning to be confined in channels, spreads itself over a considerable extent of ground and forms swamps. It is needless to say that in such places chinchona will not grow. The most disagreeable peculiarity about these swamps, however, is that they are sometimes unexpectedly formed at places which previously appeared quite dry. This is probably due to the extreme irregularity of the surface, to the inequality of the soil and sub-soil, and to the frequency of the enormous boulders, both superficial and underground, which have been rolled down the mountain side by the action of the weather. But whatever the cause may be, the effect is that wherever one of these swamps is formed, any chinchona that may have been planted there dies out rapidly. Further down the valley and below the point where the higher range bends away to the south-east and throws out the low Mungpoo Spur as its eastern continuation and as the southern side of the Rungbee Valley, these conditions do not occur. The lower slopes there have not only a much lighter rainfall, but they have only their own drainage to get rid of, and are not required to transmit also that of a high forest-clad mountain extending several thousand feet above them. It is in these drier parts that the extension of the plantation made during the past year has been carried on.

6. *Condition of the Plantation.*—The trees of red-bark chinchona (*C. succirubra*) of which the plantation mainly consists, are in my opinion in a state of health which on the whole may be considered as satisfactory. Many of the older trees are indeed extremely healthy and vigorous. Originally planted six feet apart, alternate lines of these have in some places been thinned out, and yet, standing at a distance, one is unable to detect where the thinning has taken place, so completely do the leafy heads of the trees hide the soil. Experience has shown that for the first year or two the plants grow slowly, but that as soon their heads are large enough to meet and to give shade to the soil, they start away with great vigour. The reason of this lies in the tendency the plant has to throw out fine superficial rootlets, which ramify close to the surface of the ground, and for the very life of which protection from the sun's rays is necessary.

7. *Chinchona Officinalis.*—The species yielding the crown bark of commerce has not answered well in any part of Sikkim; and so sickly were the plants at Rungbee during their visit in February 1871, that the Commission appointed to report on the plantation recommended the abandonment of crown bark cultivation. A large proportion of the

plants of this species have died out, and over almost the whole area of permanen *Officinalis* plantation *Succirubra* has been substituted. I am not without hope, however, that on drier spots than have hitherto been tried the species may yet be got to grow. Only 100,000 plants of *Officinalis* are now returned as in permanent plantation.

8. *Chinchona Calisaya.*—The plant yielding the yellow bark of commerce, and a sort second to none in value, promises to do well in Sikkim. From the difficulty of propagating this species artificially, the progress made has hitherto been slow. A few trees have, however, now begun to yield seed. This is scrupulously saved for sowing, and every effort is being made to extend the cultivation of this most valuable species, which with *Succirbura* must be our stand-by in Sikkim. There are now about 50 acres of *Calisaya* planted out, but I hope before next year greatly to enlarge the area. It is interesting to note that whereas *Officinalis* has done well in the Nilgiris, *Calisaya* has hitherto thriven badly there, and indeed now little cultivated.

9. Grey bark, although rich in the other alkaloids, is found to be poor in quinine. The cultivation of the species yielding it (*C. micrantha, nitida,* and *peruviana*), has therefore been practically abandoned for some years. The 29,000 old trees in permanent plantation look well, and are growing rapidly.

10. *Disease.*—In his evidence given before the Chinchona Commission in February last year, Mr. McIvor, Superintendent of the Nilgiri Plantations, gave rather an alarming account of a disease prevalent at Rungbee, and expressed it as his opinion that there were on the plantation at the time his evidence was taken (28th February 1871), 100,000 plants of the age of from four to six years which would die before the end of the year, and that this disease would make the formation of a permanent chinchona plantation at Rungbee or Rishap impossible. The same gentleman has since entered into greater detail on this subject in a report addressed to the Madras Government, and which, having been noticed in an English scientific periodical, has apparently got into circulation in England.

Proceedings of Chinchona Commission. Appendix (A.), No. 1, page 14, paragraph 17.

1 c., page 13, paragraph 2.

No. 9, dated Ootacamund, 25th April 1871, from W. G. McIvor, Esq., Superintendent of the Government Chinchona Plantations, to the Acting Secretary to Government, Revenue Department, Fort St. George.

11. Opinions of this sort, so strongly expressed by such an eminent chinchona cultivator, naturally led me to examine the whole plantation carefully and with some anxiety. Since doing so I have had the advantage of going over all the Government and most of the private chinchona gardens on the Nilgiris, in company with Mr. McIvor, and I must candidly say I cannot agree with him in his gloomy views regarding either the present condition or probable future of the chinchona enterprise in Sikkim. The four to six year old plants particularly referred to by Mr. McIvor have been most carefully watched. They form some of the best pieces of the plantation, and I am glad to say that at the end of March 1872, that is, 13 months after Mr. McIvor's prophecy was made, they were not only in life, but growing vigorously, and that the dreadful mortality predicted by Mr. McIvor does not seem even now to be impending. In his report Mr. McIvor enters on some calculations illustrative of his anticipations as to the small out-turn of bark which will be yielded at Rungbee owing to this disease and to other causes, and concerning one of the finest plots of trees on the plantation he writes as follows:—

"On the 30 acres of red bark near the Rishap bungalow, already mentioned as being the finest and most uniform on the Sikkim plantations, each alternate row of plants was cut down when three and half years old. The produce obtained from these plants was 40 maunds (equal to 3,200 lbs.) of dry stem and branch bark. The quantity of bark on the trees left standing on the ground would thus be 40 maunds also. Previous to the alternate line of trees being removed, about 20 maunds (equal to 1,600 lbs.) of bark from thinnings had been obtained from the same piece of ground. I thus estimate that if these 30 acres had been entirely cut down, they would have yielded a total produce of 100 maunds, or 8,000 lbs. of dried stem and branch bark, or 273 lbs. per acre." Now these 30 acres were a few months ago carefully pruned and slightly thinned, and the bark obtained from the prunings and thinnings was daily weighed. It amounted to no less than 26,459 lbs. when wet, which is equal to more than 8,000 lbs. when dry. In other words, the bark actually obtained in the course of an ordinary cultural operation, undertaken without reference to bark, and by which the trees are supposed to have been benefited, is equal to more than twice the amount which, according to Mr. McIvor's estimate, would have been got by cutting them all down for the sake of their bark. Nor has the pruning knife been used severely, for the ground on which the trees stand is still in deep shade from their spreading heads. Mr. McIvor prefaces his report to the Madras Government by saying: "I would respectfully call attention to the fact that I visited the Himalayan plantations at a season of the year when the plants are in the worst condition. My observations were made during a short stay and at an unfavourable time, and my impressions as to the condition of chinchona cultivation in the north of India might have been somewhat modified had my visit been made at a more favourable season." He advances his opinion that "permanent plantations of these species (*C. succirubra* and *C. calisaya*) cannot be formed in British Sikkim, 'with the deepest regret,'" and I have no doubt whatever will be very glad to learn that the two predictions concerning these plantations, in which he enters on special details, have not been fulfilled.

12. Mr. McIvor, in the body of his report and in his evidence, refers to only one disease,

disease, and that he calls "canker." After very careful examination it appears plain to me that two distinct forms of disease occur in the Sikkim plantations; the one, a constitutional malady affecting the whole plant and usually fatal; the other, local and by no means fatal. The former disease is confined entirely to trees which have been originally planted in damp situations, or in situations which have become damp subsequently by the oozing of drainage water in the way already explained. Disease first attacks the roots of such trees. Its existence becomes apparent by the discolorization of their leaves, which ultimately all fall off. Gradual shrivelling of the cortical and woody tissues then takes place from the root upwards, and before this process has gone far the death of the plants has begun. This disease is, in fact, apparently nearly identical with that known to gardeners in England as "canker;" it is not in any way infectious or contagious, as some appear to think. It depends entirely on a local cause, namely, excess of moisture in the soil; and where that does not exist, it cannot occur. In the chinchona planted on the western end of the Rungbee Valley (the peculiarities of which will be borne in mind) patches of trees killed by this disease are not uncommon. Such patches are invariably co-extensive with damp, watery soil, and should never have been planted. At the time they were planted there was absolutely no experience whatever on the subject of chinchona cultivation to appeal to; the peculiar physical conditions of the Rungbee Valley, as above explained, were unknown; and the idea prevailed that chinchona in its natural *hibitats* delights above all things in shade, moisture of soil, and a misty atmosphere. The mode of planting adopted was to form a continuous belt, and where these damper places fell in the line of extension, they were not passed over. I am assured that for some years many of the patches that have now died out from this form of disease were for the first two or three years extremely healthy, and I do not think that those who planted them can be charged with any want of judgment. But with the experience now accumulated, showing as it does that chinchona suffers more from an excess of shade and moisture than from the opposite conditions, it would be folly to plant in similar places. I have accordingly decided to do so only on such selected spots as possess good and equal soil with free drainage, and all the plants recently put out are in such situations. The recurrence of this first and fatal form of disease need not therefore I hope be anticipated.

13. The second form of disease does not affect the entire constitution of the plant, but manifests itself in patches on the stem and branches. The appearance of one of these patches is as if some escharotic had been dropped on the bark, which is of a dark, unnatural colour, shrivelled, dry and brittle; occasionally these appearances extend to the wood, but as a rule they do not. In size the patches vary; many are about the size of a shilling, others are much larger. They are not numerous on one tree, and are often confined to a single branch. When small, no apparent affection of the general health of the plant occurs, and growth goes on unchecked. Where, however, a large patch occurs on a small tree, involving the bark pretty nearly all round the stem, death results. Death from this disease is, however, as far as my observations go, not common; and it is a well established fact that a tree which has been extensively affected will, when cut down, throw up from its stump perfectly healthy shoots; while in hundreds of trees at Rungbee I have seen illustrations of recovery, the little patches of diseased bark being thrown off and replaced by perfectly healthy tissue, and the plant apparently as robust as if it never had been attacked. I had not sufficient leisure last year during the season at which this affection is most prevalent, namely the rains, to make successive observations on the state of the diseased tissues, and I am prepared with no theories about its cause; I hope, however, to find out something during the approaching rains. This disease is not confined like the last to certain spots, but is found on plants in all parts of the plantation. I do not think it is to be feared much, and I certainly do not concur in Mr. McIvor's views concerning its dangerous nature. In my opinion it must be accepted as one of the drawbacks attending the chinchona experiment in Sikkim in the same way as high winds and dear labour have to be accepted in the Nilgiri cultivation. Orchard-planting is not given up in the south of England because apple trees are especially subject to canker, nor are plantations abandoned in Scotland because a deadly disease (compared to which this form of chinchona disease is a trifle) attacks the larch.

14. *Summary of the Year's Work.*—During the past year 166,285 plants of *Chinchona succirubra* and 44,500 of *Chinchona calisaya* have been added to the permanent plantation. Propagation has been carried on vigorously, and the seed and nursery beds at present contain 600,000 young plants of the former and 147,500 of the latter species. The whole of the plantation has been carefully gone over, and every sickly plant has been rigorously cut down, while the healthy ones have been pruned and thinned. This has taken a great deal of time and labour, but I am convinced they have not been ill bestowed. A considerable extent of new land has been cleared and prepared for planting, and will be covered with chinchona as soon as the weather is favourable. Some new plantation roads have been made, and the old ones have also been kept in repair.

15. *Yield of Bark.*—Nearly 116,000 lbs. of green bark (equal to about 39,000 lbs. of dry bark) have been collected from the prunings and thinnings above mentioned, not a single tree having been cut merely for the sake of its bark. In accordance with the recommendation of the Chinchona Commission, a quantity of the best of this bark has been packed for transmission to England. The smaller bark, which it is considered more profitable to utilise in the manufacture of alkaloid, has, conformably to the instruction of Government, been stored up, pending the appointment of a quinologist. The bark will not deteriorate by being kept, and its storage costs nothing.

16. *Expenditure and Revenue.*—The budget allotment for the past year for all purposes was 63,621 rupees, and the expenditure *Rs.* 50,463. 13. 5., showing a saving of *Rs.* 13,157. 2. 7. The present is the first year in which revenue has been received for the sale of bark. During the year 7,016 lbs. were sold by auction in the London market. The bark was very varied in quality, a large proportion of it consisting of small quills of little value. The average price realised per pound was about 1 *s.* 5 *d.*, and the total amount received was equivalent to *Rs.* 5,068. 1. 2. When the mixed quality of the bark is considered, I think the result of this the first sale may be looked upon as favourable. The sum of *Rs.* 783. 14. was received as rent for small patches of land within the chinchona reserve, which are unsuited to our cultivation and which have been let to natives. This amount was paid into the civil treasury at Darjeeling.

17. *General Considerations.*—The production in India of chinchona bark as a crop cannot, I think, fairly be considered as yet beyond the condition of an experiment. It has indeed been demonstrated that chinchona trees can be grown successfully up to the age of about 10 years, and that their bark is quite as rich in alkaloids as that obtained from the South American forests; but whether they will reach maturity remains to be seen. It has still to be settled how the bark crop can most advantageously be taken, and the respective merits of the systems of mossing as invented and practised by Mr. McIvor, of systematic coppicing, and of working forest-fashion by selection and thinning, cannot be determined without much additional experience. Connected with the commercial aspect of the matter, there are as unsettled problems, the probable extent to which the price of the drug will be affected by the introduction into the European market of the large quantities of bark which must soon begin to be turned out by the various Indian and Colonial plantations that have been established; the amount by which the demand for preparations of chinchona will be increased by the fall in their price, which is almost certain to take place; and, finally, the advantages or disadvantages of the manufacture of an amorphous preparation at the plantation as opposed to the complete separation of each alkaloid in a pure form, or to the more primitive plan of exporting all the bark to England and of taking prepared alkaloids in exchange as part payment.

18. It is, however, a matter of satisfaction that substantial progress has been made towards the realisation of the great object which Government had in view in undertaking this experiment; namely, "to secure for the fever-stricken millions of India the inestimable blessing of an abundant and cheap supply of the only specific for the most deadly of all Indian diseases." That object will not be thoroughly secured until a febrifuge in some efficient form is procurable in every village in India. The amount of fever prevalent in the rural districts is, I believe, much greater than is usually supposed, and for its alleviation the sufferers have at present as a rule nothing more effectual than some selections from the wonderful farrago of substances known as "native medicines," few of which have much therapeutic influence in malarious fever. Any preparation of chinchona is to many a villager a thing unknown, unseen, unheard of. The amount of labour lost annually to the State by reason of the prevalence of fever is simply incalculable, while the loss of life is enormous; and I have no hesitation in saying this state of matters is to a great extent preventible by the dissemination of a cheap febrifuge.

19. As to the probable quantity of quinine that could be used in the Bengal Presidency, I calculate as follows:—There are in the provinces of Bengal, Orissa, Assam, Burmah, Behar, Oude, the North Western Provinces, Central Provinces, and Punjab, probably a hundred millions of inhabitants, all more or less subject to fever, and it is, I think, no extravagant estimate to allow five grains of quinine *per annum* to each, which is equal to a total of 65,000 lbs. or about 29 tons. In these circumstances is is probably premature to fear that too many chinchona trees are being planted.

20. In conclusion, my acknowledgments are due to Mr. Gammie, the resident manager of the plantation, and to Messrs Biermann & Jaffrey, for the efficient and hearty way in which they have performed their duties.

21. The usual returns are appended.

TABLE showing the Number and Distribution of Chinchona Plants in the Government Plantations at Darjeeling, on the 1st April 1872.

NAMES OF SPECIES OF CHINCHONA.	Number in Permanent Plantation.	Number of Stock Plants for Propagation.	Number of Seedlings or Rooted Cuttings in Nursery Beds for Permanent Plantations.	Number of Rooted Plants in Cutting Beds.	Number of Cuttings made during the Month.	Total Number of Plants, Cuttings, and Seedlings.
C. Succirubra	1,400,000	-	480,000	120,000	-	2,000,000
C. calisaya	77,500	10,000	70,000	77,500	-	235,000
C. micrantha	29,667	-	-	-	-	29,667
C. officinalis and varieties	100,000	-	-	-	25,000	125,000
C. pahudiana	5,092	-	-	-	-	5,092
C. pitayensis	-	16	-	-	24	40
TOTAL	1,612,259	10,016	550,000	197,500	25,024	2,394,799

TABLE showing the Growth of Chinchonas in the Darjeeling Plantations during the Month ending 31st March 1872.

Nos.	NAMES.	3rd Plantation (Rishap). Altitude 2,000 feet.					4th Plantation (Runghu). Altitude 3,332 feet.					5th Plantation (Runghu). Altitude 2,556 feet.				
		Date of Planting.	Height in inches on 1st January 1868.	Height on 1st October 1871.	Height on 1st April 1872.	Growth during Six Months.	Date of Planting.	Height in inches when Planted.	Height on 1st October 1871.	Height on 1st April 1872.	Growth during Six Months.	Date of Planting.	Height in inches when Planted.	Height on 1st October 1871.	Height on 1st April 1872.	Growth during Six Months.
			Inches.	*Inches.*	*Inches.*	*Inches.*		*Inches.*	*Inches.*	*Inches.*	*Inches.*		*Inches.*	*Inches.*	*Inches.*	*Inches.*
1	C. succirubra - - -	29th March 1867	29	204	232	28	29th July 1864	5	267	249 Top broken.	–	15th Oct. 1864	6	302	314	12
2	Ditto - - -	29th „ „	30	214	222	8	29th „ „	6	248	275	27	15th „ „	10⅜	225	229	4
3	Ditto - - -	29th „ „	37	209	229	20	29th „ „	7½	217	238	21	29th July „	5½	223	228	5
4	Ditto - - -	29th „ „	24	228	252	24	15th Oct. „	10⅛	249	271	22	29th „ „	3	217	219	2
5	Ditto - - -	29th „ „	37	226	248	22	29th July „	4⅝	211	225	14	29th „ „	5½	288	317	29
6	Ditto - - -	29th „ „	30	238	262	24	29th „ „	4½	163	172	9	29th „ „	3	75	108	33
7	Ditto - - -	29th „ „	27	177	192	15	29th „ „	3½	259	277	18	29th „ „	4	312	334	22
8	Ditto - - -	29th „ „	30	226	226	–	29th „ „	2	214	240	26	29th „ „	4⅛	240	255	15
9	Ditto - - -	29th „ „	29	166	168	2	29th „ „	3	216	232	16	29th „ „	4	244	251	7
10	Ditto - - -	29th „ „	25	162	192	30	29th „ „	3	236	150 Top broken.	–	29th „ „	3	220	232	12
1	C. micrantha - -	16th „ „	17	150	166	16	15th Oct. „	9	160	167	7	29th „ „	5½	157	180	23
2	Ditto - - -	16th „ „	19	195	210	15	29th July „	6⅜	226	258	32	29th „ „	6	160	169	9
3	Ditto - - -	16th „ „	44	198	205	7	29th „ „	3	194	232	38	15th Oct. „	6	220	250	30
4	Ditto - - -	16th „ „	46½	197	206	9	29th „ „	2½	Dead	–	–	29th July „	4½	172	110 Young shoot.	–
5	Ditto - - -	16th „ „	45⅜	211	226	15	15th Oct. „	3	179	215	36	15th Oct. „	5½	205	240	35
1	C. calisaya - - -	29th June „	25	223	240	17	29th June 1867	15¼*	125	138	13	1st January 1868	2	141	149	8
2	Ditto - - -	29th „ „	16	216	226	10	29th „ „	9¾	125	148	23	1st „ „	3½	165	175	10
3	Ditto - - -	29th „ „	15	193	210	17	29th „ „	12½	123	138	15	1st „ „	3¾	178	198	20
4	Ditto - - -	29th „ „	16	187	199	12	29th „ „	10	120	131	11	1st „ „	3¼	168	176	8
5	Ditto - - -	29th „ „	22	188	201	13	29th „ „	11½	149	155	6	1st „ „	1¾	174	186	12
6	Ditto - - -	29th „ „	24	211	225	14	29th „ „	10½	133	149	16	1st „ „	4¼	149	171	22
7	Ditto - - -	29th „ „	23	221	235	14	29th „ „	10⅜	138	139	1	1st „ „	4	168	179	11
8	Ditto - - -	29th „ „	19	194	213	19	29th „ „	15½	43	50	7	1st „ „	2¾	188	202	14
9	Ditto - - -	29th „ „	21	196	205	9	29th „ „	14½	125	129	4	1st „ „	7	172	183	11
10	Ditto - - -	29th „ „	21	210	219	9	29th „ „	16	144	156	12	1st „ „	3½	121	128	7

* Height on 1st January 1868.

George King,
Superintendent, Botanical Gardens, and in charge of Chinchona Cultivation in Bengal.

[J. A. R. and W. E. B.]

Enclosure 2, in No. 15.

Resolution.

Calcutta, 13 July 1872.

Read,—The Report on Chinchona Cultivation in Bengal, by Dr. G. King, Superintendent of the Botanical Garden, for the year 1871–72.

Resolution.—Dr. King prefixes to his report on the year's operation an interesting sketch of the topography, climate, and characteristics of the valley in which are situate the Government chinchona plantations of British Sikkim. The differences of temperature, rainfall, and soil, at different parts of the valley make it possible to give the fullest trial to the different species of chinchona. It might be added to Dr. King's sketch that all the Government plantations are on the right bank of the Rungjo stream; and that on the left, or less wooded side of the valley, is a flourishing plantation of chinchona belonging to a private company, on whose lands 1,085* acres are already planted with chinchona (chiefly succirubra), and from which 25,830 lbs. of bark were yielded in the year 1871.

* At 500 trees to the acre, this area would contain about 500,000 trees.

2. Last year's (1870-71) report noticed the proceedings of the Chinchona Commission, which, after visiting all the plantations very carefully, pronounced against the attempt to grow C. officinalis (crown bark) in Sikkim, and recommended the Government to make the C. succirubra (red bark) the staple of its plantations. One member of the committee, a gentleman versed in chinchona cultivation, expressed a fear that the Sikkim plantations would suffer greatly from the "canker" to which its trees were liable. The present report shows that the recommendations of the Commission have been carried out, and that the C. succirubra has almost entirely taken the place of the C. officinalis. The plantations of both C. succirubra and C. calisaya (yellow bark) are reported to be doing extremely well; the success of the yellow bark species is particularly satisfactory, as the bark of this variety is richer in alkaloids and more valuable than the red bark. Dr. King seems confident that, so far as the observations of one year warrant a conclusion, the plantation has not to fear destruction from "canker;" and he appears to hope that the red bark and yellow bark trees, which have done so well during the past five years, may continue to do well; he observes, however, that chinchona cultivation in India is still an experiment, and "it remains to be seen whether they (the trees) will reach maturity."

3. The Lieutenant Governor had the satisfaction of visiting the Rungbee plantations in company with Dr. King last autumn, and he found the chinchona cultivation to be, to all outward appearance, a very much more successful and business-like affair than he had, after reading the reports, supposed to be. He saw hundreds of acres of plantation, with trees averaging from 12 to 25 feet high, and hundreds of acres more, with trees averaging from 3 feet to 10 feet high. Exclusive of the marshy gaps described in Dr. King's 12th paragraph, the trees looked as healthy and well grown as ordinary trees in the best plantations to be seen on English or Scotch estates. The C. calisaya has a smaller, duller-coloured leaf than the C. succirubra, and the yellow bark plantations are as yet on a very small scale, and do not from a distance look so flourishing as the red bark; but individual trees of the calisaya species are, when closely examined, to all appearance quite as healthy as the succirubra trees. The Table appended to Dr. King's report, giving the growth of individual trees of both species, which have been carefully marked and observed during the last two years, shows that—

> Ten C. succirubra trees 7½ years old, have attained an average height of 20½ feet, and grew on an average 1⅙ feet during the last six months.
>
> Ten C. succirubra trees, 4½ years old, but planted at a lower altitude than the other 20, have attained an average height of 18½ feet, and grew on an average 1½ feet during the last six months.
>
> Ten C. calisaya trees, 4½ years old, and grown at the same altitude as the last-mentioned red bark trees, namely, 2,000 feet above the sea, have attained an average height of 18 feet, and grew on an average one foot during the last six months.
>
> These trees were not selected as specially luxuriant trees, but were taken as average specimens of the plantations to which they belonged. The highest trees of which measurements are given by Dr. King was a 7½ year old succirubra 26½ feet high.

4. It is as yet too soon to speculate upon the weight of bark which the chinchona plantations may hereafter yield annually; but the yield of the thinnings and prunings of thirty acres of plantation, as shown in Dr. King's 11th paragraph, warrants an expectation that the average yield of the red bark trees may be fairly good. The price (1 *s.* 5 *d.* per lb.) obtained in London for the first consignment of Rungbee bark was satisfactory; but until the first few consignments have been worked up, and the per-centage of alkaloids obtainable from the Sikkim bark is known in London, we cannot estimate the value of the bark, nor can we reckon on getting 1 *s.* 5 *d.* per lb. for all we may send home. The total yield from the prunings and thinnings of the year was 39,000 lbs. of dry bark, some of the best of which has again been sent home for sale in London. If the dry bark will

yield

yield 3 per cent. of useful alkaloids, the produce of the year under review would give 1,170 lbs. of alkaloid, which might be worth to Government 25 rupees a lb., or 29,250 rupees in all.

5. The extensions and plantation operations of the year (paragraph 14) appear to have been systematically maintained, more than 200,000 trees having been added to the permanent plantations. The extensions are almost entirely at lower altitudes than the earlier plantations, as the chinchona is found to thrive best in the lower parts of the valley.

6. The Lieutenant Governor considers that Dr. King and Mr. Gammie have conducted the chinchona plantation affairs satisfactorily and economically during the year under review. The important problem now to be solved is the best and most economical process of preparing alkaloids on the spot at Rungbee. There will be some 60,000 or 70,000 lbs. of dry bark ready for the quinologist by the end of the current season; and the Lieutenant Governor hopes that by the beginning of the cold weather arrangements for providing a competent quinologist may be effected. When freight from Rungbee to Calcutta is nearly 1 rupees a maund, it will clearly be cheaper to prepare the alkaloids on the spot (if the work can be well done) rather than send home to Europe 100 maunds of dry bark, which can produce only three maunds of alkaloid.

By order of the Lieutenant Governor of Bengal,

C. Bernard,
Officiating Secretary to the Government of Bengal.

— No. 16. —

(No. 17—Agriculture.)

From the Government of India to the Secretary of State for India.

My Lord Duke, Simla, 3 October 1872.

WITH reference to the letter addressed to your Grace by the Government of Madras on the 15th February last, No. 4 (Revenue—Miscellaneous), regarding the introduction of canker in the Chinchona plantations at Rungbee from diseased plants received from the Nilgiris, we have the honour to forward, for your Grace's information, a copy of the papers noted below. It will be seen that the inquiries we have caused to be made leave little doubt of the fact that canker did exist in the plants received from the Nilgiris.

2. We were never disposed to attach much weight to Mr. McIvor's views as to the certain and rapid extinction of the Sikkim plantations; but it is nevertheless satisfactory to know that, after the lapse of more than 18 months, these plantations, so far from exhibiting signs of decay, are more vigorous and flourishing than in any past period of their existence.

We have, &c.
(signed) *Northbrook*, &c.

LIST of PAPERS to accompany Letter to the Right Hon. the Secretary of State for India, dated 3 October 1872.

1. Letter from the Government of Madras, dated the 11th January 1872, with enclosures, and endorsement thereon to the Government of Bengal, dated 18th March 1872.
2. Letter from the Government of Bengal, dated the 6th September 1872, with enclosures.
3. Letter to the Government of Madras, dated 1st October 1872.

Enclosure 1, in No. 16.

From the Secretary to the Government of Madras to the Secretary to the Government of India.

Sir, Madras, 11 January 1872.

THE Government of Madras, when lately on the Nilgiris, made inquiry as to the foundation for the statement published at pages 982 and 1,000 of the Supplement to the "Gazette of India," dated 8th July 1871, to the effect that the chinchona plants, when originally supplied from the Nilgiris to Darjeeling, were affected with canker; and I am now directed to forward copy of Mr. McIvor's reply on the subject, and to request that, in justice to him and to this Government, the same publicity may be given to his statement as was given to the unfavourable report above alluded to, which, this Government consider, is conclusively shown to have been unfounded in fact and hastily accepted. I am to add that the copy of this letter and of Mr. McIvor's defence will be communicated to the Secretary of State.

I have, &c.
(signed) *W. Hudleston.*

LETTER referred to in Enclosure 1.

From the Commissioner of the Nilgiris to the Secretary to Government, Revenue Department, Fort St. George; dated Ootacamund, 13th December 1871.

IN accordance with the Under Secretary's letter of the 27th October 1871, I drew Mr. McIvor's attention to the statement made by Mr. Munro at page 982 of the Supplement to the "Gazette of India," dated 8th July 1871, namely: "We received our first (chinchona) cuttings from the Nilgiris, and these were extensively affected with canker;" and to the remark in paragraph 4 of Mr. Secretary Hume's letter (page 1,000 of Supplement), to the effect that the canker, which has attacked the plants at Rungbee, "is shown to have existed in the plants originally sent up from the Nilgiris as stock for the Sikkim plantations."

2. As directed, I forward Mr. McIvor's remarks, which are pertinent, and, to my mind, conclusive.

The weight due to Mr. Munro's statement is not difficult to determine with the aid of Mr. McIvor's explanation, that the Darjeeling Association never received any cuttings from the Nilgiris in Mr. Munro's time, and that Mr. Munro did not arrive at Pomong until the Nilgiri plants originally supplied had been nearly two years, and the last supply fully ten months, in Bengal.

It was not the object of the Chinchona Commission to discover whether the disease came from this or that district, and, therefore, Mr. Munro's statement passed unchallenged; nor is it worth while now, I apprehend, to ask him to refresh his memory by the light of Mr. McIvor's letter.

3. There remains Mr. Hume's statement.

I have read the Chinchona Commissioners' report, and am at a loss to understand how Mr. Hume arrives at the conclusion that the disease "is shown to have existed in the plants originally sent up from the Nilgiris."

Mr. Munro's random assertion is the only evidence that the Nilgiri plants were cankered; yet this single unexamined statement, made seven or eight years after the last supply of Nilgiri plants to Bengal, by a witness who could not speak from his own experience, is accepted by Mr. Hume as conclusive, and is made public, with the authority of the Government of India, in the face of Dr. Anderson's testimony at the time to the "vigorous growth and excellent condition" of the Nilgiri plants imported by him.

4. Such a hasty statement is hardly creditable to a department lately created,* in order that "special attention might be devoted to many branches of administration now unavoidably more or less neglected, or but imperfectly dealt with."

* *Vide* Supplement to the "Gazette of India," dated 10th June 1871, page 923.

LETTER referred to in Enclosure 1.

From Mr. *W. G. McIvor*, Superintendent, Government Chinchona Plantations, to the Commissioner of the Nilgiris; dated Ootacamund, 6th December 1871.

I HAVE the honour to acknowledge your letter, No. 61, of the 31st ultimo, calling my attention to pages 982 and 1,000 of the Supplement to the "Gazette of India" of 8th July 1871, in which is published the Report of the Bengal Chinchona Commission, and asking me for an explanation of the evidence given by Mr. Munro, namely, that "we received our first cuttings from the Nilgiris, and these were extensively affected with canker;" and to paragraph 4 of the Proceedings of the Governor General in Council, where the canker in the chinchona plants in Sikkim is said to be "a disease which is shown to have existed in the plants originally sent up from the Nilgiris as stock for the Sikkim plantations."

2. In reply, I beg to state that I am not aware of the facts on which the Government of India have come to the above conclusion, but if the original 204 plants of chinchona, selected by Dr. Anderson in December 1861 from our stock on the Nilgiris, and conveyed by that gentleman to Bengal, were really cankered plants, it is remarkable that there should have been no mention of this fact until 1871. The reports by the gentlemen in charge of the Bengal plantations describe the plants to be in the "highest health" and "growing most vigorously." It appears impossible that responsible, scientific, and practical gentlemen should have continued for years to furnish such favourable reports on plants which were affected with disease from the first.

3. When viewed in connection with recorded facts many of the statements made before the Chinchona Commission appear contradictory and impossible. This is especially the case with reference to the evidence of Mr Munro. It is, therefore, to be regretted that that gentleman was not asked to explain the facts on which he made the statement above quoted. It is quite certain, from a careful examination of the records, that Mr. Munro never received any cuttings from the Nilgiris. In fact, Mr. Munro did not arrive at Pomong until December 1863, or when the original plants sent from the Nilgiris as stock for the Sikkim plantations had been nearly two years, and the last supply fully ten months, in Bengal. Thus it was impossible for him to know whether such plants were healthy or otherwise when they left the Nilgiris.

4. At page 981, in reply to Question No. 2, Mr. Munro states: "But my present plantation of 500,000 (*C. Succirubra*) plants have been raised by cuttings from 92 plants." This is an error, as I supplied a quantity of excellent seeds to the proprietors of the Pomong plantations, Mr. Lloyd and Colonel Angus. These seeds germinated freely, and probably produced from 50,000 to 100,000 seedlings. The seeds were gathered from plants which never had an indication of disease, and at the present moment are fine forest trees.

5. Another instance of the manner in which the evidence given before the Chinchona Commission is ill-considered, and likely to mislead, occurs at page 985, where Mr. Mann, in referring to the plants planted out in Sikkim in 1864, says: "Ten per cent. were old exhausted stock plants from the Nilgiris." Mr. Mann did not arrive in India till the 14th March 1864, or one year and two months after the last supply of Nilgiri plants arrived in Bengal.

6. It appears to be assumed that the Sikkim plantations were stocked with plants from the Nilgiris only. But the records show that the stock was obtained as follows:— Dr. Anderson raised in April and May 1861 in the Calcutta Botanic Gardens 120 seedlings* from seeds of *C. Micrantha*, *C. Succirubra*, and *C. Peruviana*, obtained by Mr. Markham from South America. Of *C. Pahudiana*, 548 seedlings were raised in Calcutta in December 1861, and the early part of January 1862 from Java seeds. Two hundred and four plants reached Calcutta from the Nilgiris on the 13th January 1862, and the second and last supply of 350 plants from the Nilgiris† arrived in Calcutta on the 30th January 1863. Of *C. Officinalis*, 11 plants‡ were received from Ceylon on the 28th January 1863, and 1,373 additional plants of *C. Pahudiana* from Java seed had germinated on 1st April 1863. In March 1866 Dr. Anderson raised 3,100 seedlings§ of *C. Officinalis* from seeds received in January 1866 from Mr. Thwaites, Ceylon, and 8,000 seedlings‖ from seeds received from the same source in March 1866. During 1866-67, 38,500 seedlings, and in 1867-68, 101,175 seedlings were raised in the Sikkim plantations.

7. Thus

* Report of Botanical Gardens, Calcutta, from April 1861 to April 1862, by T. Anderson, Esq.
† Annual Report of Chinchona cultivation in British Sikkim, dated 30th April 1863.
‡ T. Anderson, Esq., to Junior Secretary to Government of Bengal, 1st May 1866.
§ Report of the Sikkim plantations from 1st April 1865 to 31st March 1866, by T. Anderson, Esq.
‖ Report on the cultivation of Chinchona in Bengal for the year 1867-68.

7. Thus the Sikkim plantations received large supplies of seeds and plants from other sources than the Nilgiris; the Nilgiris merely furnishing the principal stock of *C. Calisaya* and *C. Succirubra*. The Sikkim stock of *C. Officinalis* was raised principally from seeds from Ceylon, and it is worthy of note that the entire stock of this species has been so seriously affected with canker as to cause the cultivation to be abandoned. The Sikkim stock of *C. Pahudiana* raised solely from Java plants and seeds has also been destroyed by canker. The Java variety of *C. Calisaya* (*C. Josiphiana*) has been so affected by canker that only one plant existed on the Sikkim plantations at the date of my visit in February 1871 out of all the plants received of this variety. It is thus a matter of record that disease in the Sikkim plantations has not been confined to plants produced from the Nilgiri stock; disease, in fact, having made even more serious inroads on the plants and seedlings from South America, Ceylon, and Java. The *C. Succirubra* and *C. Calisaya*, the principal stock of which were supplied from the Nilgiris, are the only species which give a hope of successful culture in Sikkim. It, therefore, may be fairly assumed that the stock of these plants were at least as healthy as any procured elsewhere.

8. I shall now notice what Dr. Anderson states to have been the condition of our plants. That gentleman visited the Nilgiris on the 17th December 1861, and that he was not favourably impressed with anything we had done is abundantly illustrated in his Report to the Secretary to the Government of India of 14th February 1862. In this Report Dr. Anderson condemns all the sites on the Nilgiris as unsuited to the growth of chinchona. He asserts that the plants require "dense shade," and that our attempt to grow a "shade-loving tree" in such "unnatural places as cleared gardens" will end in "complete failure." This depreciation also extends to our plants, as Dr. Anderson, in the same Report, at paragraph 8, states, "The season is now too far advanced for the despatch of plants to Java, and the plants at the Nilgiris are not at all adapted for transmission to a distance, as plants artificially propagated, as they have been, cannot bear the risk of a long journey without a few months' preparation. Of those I brought, the short journey from the Nilgiris to this, I lost nearly 10 per cent., while the plants from Java, which were seedlings, can hardly be said to have suffered at all." Again, at paragraph 6, Dr. Anderson, referring to the Nilgiri plants, says, "These arrived in tolerable order, considering the loose manner in which Mr. McIvor, from want of time, was obliged to pack them. About 13 plants out of 204, the entire number received, have been seriously damaged; the remainder, in the present genial climate of Calcutta, have quite recovered, and are as healthy as at Ootacamund." Again, at paragraph 20, Dr. Anderson states that "193 plants" out of the 204 were "growing most vigorously" in the Calcutta Botanical Gardens on 19th January 1862. This reduces the loss to less than 5½ per cent.

9. The whole of the above gives a most erroneous impression, as the loss of the plants was neither owing to artificial propagation, or to being carelessly packed, but was wholly caused by an accident which Dr. Anderson describes in his Report on the Botanical Gardens, Calcutta, from April 1861 to April 1862, in these words: "While I was at Ootacamund I procured 204 plants belonging to four other species of chinchona, besides those I obtained in Java. Several of these plants were destroyed between the foot of the Nilgiris and the railway station by the upsetting of one of the carts on which the Wardian cases were carried."

10. The last batch of plants forwarded from the Nilgiris as stock for the Sikkim plantations were prepared by me in December 1862, and are thus mentioned by Dr. Anderson in his report on the Sikkim plantations, from 1st April 1862 to 30th April 1863: "These plants were obtained from Madras on the 31st January 1863, and of the original number, 350, obtained from Madras, only 23 had been lost between Calcutta and Darjeeling during the two months that had intervened from the date of their arrival in Calcutta and their reaching Darjeeling." Dr. Anderson speaks of the same plants in his letter to Sir William Denison, dated 9th March 1863, as follows:—"You will probably like to hear that the chinchona plants supplied to me from Ootacamund arrived here in excellent condition; they are still in the gardens, and have grown much, most of them having made three pairs of leaves since their arrival here. The weather is now getting too hot for all of them, except *C. Succirubra*."

11. On the Nilgiris we received, on the 9th April 1861, in all 463 plants of *C. Succirubra* from South America, and those plants had been about eight months on these hills at the time Dr. Anderson selected the plants for Bengal. Dr. Anderson thus describes our plants at the date of his visit (December 1861): "With the exception of a few plants recently placed in the open air nurseries at Neddivuttum, all the chinchona plants on the Nilgiris are growing in the conservatories in the Government Gardens at Ootacamund, where, protected from the vicissitudes of the weather, and in a recently erected house, even under the influence of artificial heat they are growing luxuriantly." Dr. Anderson selected his 204 plants from 3,500, which were prepared to be sent to the Neddivuttum Nurseries, and the whole of the remainder of these plants, namely, 3,296, were subsequently planted on the first Denison plantation, and now form a fine chinchona forest. No disease has ever appeared among any of these plants. During this year we have taken the bark from the stems of 1,000 of these trees, and they have yielded upwards of three pounds of dry bark each; the trees, notwithstanding the removal of the bark, still continue to maintain their usual health and vigour.

12. In

12. In conclusion, I would desire to bring prominently forward the following facts:—First, for many years, subsequent to the receipt of the Nilgiri plants, Dr. Anderson and the other gentlemen in charge of the plantations speak of them as in the "highest health" and "growing most vigorously," &c. (*a*); second, the plants and seedlings received from other places than the Nilgiris, are, if anything, more extensively diseased than those raised from the Nilgiri stock; third, that Dr. Anderson selected his own plants (204) out of 3,500, the remaining 3,296 were planted out on the Nilgiris. No trace of disease has ever shown itself in these plants, and they are at the present time as fine trees for their age as any in the world; fourth, the loss of the 11 plants mentioned by Dr. Anderson was owing to an accident, and not to artificial propagation or loose packing.

(*a*) From *Thomas Anderson*, Esq., M.D., Officiating Superintendent, Royal Botanic Gardens, to *W. Grey*, Esq., Secretary to the Government of India, 11th February 1862.

20. * * "The plants are in very good health, and *C. Succirubra*, *C. Calisaya*, and *C. Pahudiana* are growing most vigorously, and seeds *C. Pahudiana* are coming up daily."

* * * * *

First Annual Report on Chinchona Cultivation in *British Sikkim* from 1st April 1862 to 30th April 1863, by *T. Anderson*, Esq., M.D., Officiating Superintendent of the Botanic Gardens, *Calcutta*.

* * * * *

"I am glad to be able to report that on my visiting the Chinchona Nursery at Lebong in the end of May, I found all the plants in the highest health, and that the propagation of all the species, except *C. Pahudiana*, was advancing rapidly."

* * * * *

Report on Chinchona Cultivation, at *Darjeeling*, from 1st April 1863 to 15th July 1864, by *T. Anderson*, Esq., M.D., Superintendent, Botanic Gardens, *Calcutta*.

* * * *

"It is, however, deserving of notice, as showing the great suitability of the climate of Darjeeling for the species *C. Officinalis* (var. Bonplandiana), that the rate of increase of that species has been nearly 2,000 per cent. during the same period. The rate of increase is now most satisfactory, and the cuttings obtained monthly are large and healthy."

From *T. Anderson*, Esq., M.D., Superintendent of the Botanic Gardens, *Calcutta*, to *S C Bayley*, Esq., Junior Secretary to the Government of Bengal, 13th February 1865.

* * * * *

"The condition of the plants is in the highest degree satisfactory, considering the removal of almost all from Lebong to Rungbee, a distance of about 20 miles."

* * * * *

Report on the Cultivation of Chinchona at *Darjeeling* during the Month of April 1865.

* * * * *

2. "The growth of the plants has everywhere been most satisfactory, and especially at the lowest plantation the condition of the plants of all species could hardly be surpassed."

* * * * *

Report on the Cultivation of Chinchona at *Darjeeling*, from the 1st April 1865 to 31st March 1866, by *T. Anderson*, Esq., M.D., Superintendent, Royal Botanic Gardens, *Calcutta*.

"I am glad to be ableto report that the cultivation of chinchcna at Darjeeling has, during the past year, been attended with the greatest success."

* * * * *

"The stock plants of all the species are in the finest condition, and the 37,000 plants of *C. Succirubra* and *C. Officinalis* intended for the permanent plantations to be commenced in April, are strong and healthy."

* * * * *

Report on the Cultivation of Chinchona in *Bengal* for the Year 1867–68.

"The cultivation of chinchona has been most successfully carried on during the year. The number of plants propagated has far exceeded the amount added to the chinchonas during any previous year."

* * * * *

From *C. B. Clarke*, Esq., M.A., Officiating Superintendent, Botanic Gardens, and in charge of Chinchona Cultivation in *Bengal*, to the Secretary to the Government of Bengal (Botanic Gardens, 27th May 1869).

* * * * *

7. * * "The growth made by the plants in the Rungbee and Rishap plantations during the year has far exceeded that during the preceding year."

* * *

Enclosure 2, in No. 16.

From *J. Ware Edgar*, Esq., to the Under Secretary to the Government of India.

Sir, Calcutta, 6 September 1872.

WITH reference to your letter, No. 112, dated 18th March 1872, I am directed to submit, for the information of his Excellency the Governor General, copies of the correspondence noted on the margin, regarding the importation of cankered chinchona plants from the Nilgiris.

12th July 1872, from the Superintendent of the Botanic Garden, and in charge of Chinchona cultivation in Bengal.
8th August 1872, from the Officiating Superintendent of the Botanic Garden, and in charge of Chinchona cultivation in Bengal.

I have, &c.
(signed) *J. Ware Edgar.*

LETTER referred to in Enclosure 2.

From *George King*, Esq., M.B., Superintendent, Botanic Garden, and in charge of Chinchona Cultivation in Bengal, to the Officiating Under Secretary to the Government of Bengal.

Royal Botanic Garden, 12 July 1872.

WITH reference to your Memorandum, marginally noted, calling for a report on the statements made by Mr. McIvor impugning the correctness of the evidence given by Mr. Munro as to the importation of cankered chinchona plants from the Nilgiris, I have the honour to state that I have collected fresh evidence on the point from all the persons known to me now in India who were connected with the first chinchona experiments in Sikkim.

Dated 12th April 1872, with enclosures.

2. I have now the honour herewith to forward, for the information of Government, copies of the statements of the following gentlemen :—

(I.)—Dr. B. Simpson, Civil Surgeon of Patna, and formerly of Darjeeling. Dr. Simpson was interested in the Pomong plantation on its first being started, and consequently writes from personal knowledge.

(II.)—Mr. Munro, manager of the Pomong plantation.

(III.)—Mr. Jaffrey of the Government Chinchona plantation. Mr. Jaffrey has been continuously on the Government plantation since its commencement until now.

(IV.)—Mr. Gammie, Resident Manager, Government chinchona plantation.

(V.) Mr. Scott, Curator, Botanic Garden. Mr. Scott originally served on the Government chinchona plantation, but was subsequently transferred to his present appointment.

From J. Geoghegan, Esq., to H. Plowden, Esq., dated 6th April 1872.

3. In compliance with Mr. Geoghegan's letter, marginally noted, I have the honour to submit some remarks on the several matters touched upon in Mr. McIvor's letter to Commissioner of Nilgiris, dated 6th December 1871.

Report of the Chinchona Commission, dated 30th March 1871.

4. In the evidence taken by the chinchona Commission during March 1871, no particulars are recorded in regard to the introduction of canker to the Government plantation, none of the witnesses apparently having been questioned on the point. Mr. Munro's statement (page 21, paragraph 41, 4th clause), that his association received its first cuttings from the Nilgiris, and that "these were extensively affected with canker," is the only one in which the importation of the disease into Sikkim is specially referred to. From his letter above quoted, it appears Mr. McIvor is not inclined to admit that any plants sent by him from the Nilgiri plantations to Sikkim for either the Government plantation or that of the chinchona Association could, on arrival in Sikkim, have been affected with the disease which he calls "canker."

5. As regards the Government Sikkim plantations, Mr. McIvor thinks it improbable (paragraph 2 of his letter) that if cankered plants were received, the fact should not have been mentioned until the year 1871. Mr. McIvor's argument is a negative one, and his numerous extracts from the reports of the late Dr. Anderson, while proving that in Dr. Anderson's opinion the success of the chinchona cultivation under him had been great, do not prove that it had been attended by no drawbacks whatever. Had Dr. Anderson considered the so-called canker such a formidable affection as Mr. McIvor does, he would have doubtless referred to it in his reports. From his not having done so, the natural inference is that he did not think it worth mentioning, and that on the whole he considered himself warranted in regarding the chinchona experiment in Sikkim as a success, a view which is, I believe, shared by most people who have seen the plantations there. Now, however, that the question as to the introduction of canker has been definitely raised, the evidence goes to show that, as a fact, the plants brought from the Nilgiris were on arrival, or very soon thereafter, found to be affected with it. Mr. Jaffrey (in paragraph 2 of his evidence) positively states that the 327 plants received by Government

ment in April 1863 from the Nilgiris were cankered (these are the plants referred to in Mr. McIvor's paragraph 10), and that those received by him in August 1862 were also diseased. Dr. Simpson corroborates Mr. Jaffrey's statement in so far when he says that he saw the disease in the plants in pots under glass at Lebong before a single one had been planted out. Messrs. Scott and Gammie, who joined the chinchona establishment subsequently to the importation from the Nilgiris, bear testimony to the fact that prior to their arrival canker had been established among the plants. It is, therefore, quite clear that it did not appear suddenly and for the first time as a wide-spread epidemic shortly anterior to the visit of the Commission in February 1871.

6. As regards the private plantations in Sikkim, Mr. Munro states that his association got its first cuttings from the Nilgiris, and that these were "extensively affected with canker." Mr. McIvor argues that Mr. Munro's evidence is inadmissible, because he says "it is quite certain from a careful examination of the records that Mr. Munro never received any cuttings from the Nilgiris." Mr. Munro, on the contrary, states (paragraph 3 of his memorandum), that early in 1864, and a few months after his own arrival in Sikkim, four Wardian cases of chinchona plants were received from the Nilgiris, and that these were the plants described by him in his evidence before the Commission as "extensively affected with canker." Mr. Lloyd, who succeeded Dr. Bourne as secretary to the association, of which Mr. Munro is the manager, corroborates this by explaining how much these plants cost. The evidence concerning this importation is very clear, dates of despatch and arrival of the cases and of the remittance of the money in payment being given. Mr. Lloyd further shows that prior to this payment 500 rupees had been remitted to Mr. McIvor for plants, of which Mr. Munro says (paragraph 4) only seven were survivors at the date of his arrival in Sikkim. Dr. Simpson bears testimony to Mr. Munro's general accuracy, and himself describes the condition of the first importation from the Nilgiris; while, in paragraph 3 of his Memorandum, Mr. Jaffrey states that he was consulted during the year 1863 by Mr. Barnes, one of the original partners in the Chinchona Association, as to the diseased condition of some plants received from the Nilgiris.

7. In paragraph 4 of his letter, Mr. McIvor points out an "error" of omission into which he says Mr. Munro has fallen in his evidence before the Commission, and, by way of rectifying Mr. Munro's omission, states that the Chinchona Association was supplied by him with seeds enough of chinchona to have produced "probably from 50,000 to 100,000 seedlings." Mr. Munro, in paragraph 5 of his Memorandum, states that the amount of seed (a quarter of an ounce) was sufficient, on McIvor's own showing, to have produced only from 5,000 to 6,250 plants. Mr. Munro has thus, I think, very conclusively disproved both the charges of inaccuracy brought against him by Mr. McIvor.

See McIvor on Propagation of Medicinal Chinchonas, p. 6, paragraph 12.

8. A few statements in Mr. McIvor's letter, which bear not on the introduction of canker but on its effects in Sikkim, remain to be noticed. In paragraph 7 of his letter he says, "the entire stock of this species (*Chinchona Officinalis*) has been so seriously affected with canker as to cause its cultivation to be abandoned." I have elsewhere stated at length the causes of the abandonment of the cultivation of *Chinchona Officinalis*, and would here only draw attention to paragraph 4 of Mr. Gammie's, to paragraph 5 of Mr. Jaffrey's, and to paragraph 7 of Mr. Munro's memoranda, in which these gentlemen distinctly state that canker was *not* the cause of its failure.

Report on Chinchona Plantations, Sikkim, for year ending 31st March 1872.

9. In the paragraph of his letter just referred to, Mr. McIvor goes on to say that "the Sikkim stock of *C. Pahudiana* raised solely from Java plants has also been destroyed by canker." I am rather surprised to find this statement made by Mr. McIvor, for everybody interested in chinchona cultivation ought to know that this species, after having been extensively cultivated in Java, was discovered to yield *no quinine*, and that for this reason its cultivation was everywhere abandoned. Messrs. Munro and Jaffrey note this fact in their memeranda.

10. A third mistake into which Mr. McIvor has fallen in this same paragraph 7 is that of saying that "the Java variety of *C. Calisaya* (*C. Josephiana*) has been so affected by canker that only one plant existed on the Sikkim plantation at the date of my visit in February 1871 out of all the plants received of this variety;" whereas Mr. Gammie in the concluding paragraph of his memorandum estimates the number at 8,000.

11. In my last annual report I have given my own opinions on the disease existing in the Sikkim plantations, and have distinguished two forms of it, one general and one local. The latter I regard as anything but fatal, and I would here merely allude to the instructive instance of recovery mentioned by Mr. Gammie in the concluding part of paragraph 1 of his statement. I may mention that I saw examples of both forms of the disease in the chinchona plantations on the Nilgiris during my recent visit to them, although neither is common there.

I.—Dr. Simpson.

My dear King, Bankipore, 25 June 1872.

Mr. McIvor is wrong in stating that Mr. Munro received no cuttings from the Nilgiris. It is quite true that the first instalment of plants were sent long before his arrival, but when they were opened in my presence at Lebong only one plant in the box was alive, and even this subsequently died. I also corroborate Mr. Munro's statement regarding the disease in the plants. Moreover, before Mr. Munro arrived in the country at all, and before a single plant belonging to Government was planted out, I saw the disease at Lebong in the glasshouse, while the plants were in pots (I allude here to the Government plants). Mr. Jaffrey, who was then in charge, can bear enough testimony to this. From my personal knowledge of Mr. Munro, even were I unacquainted myself with the actual state of matters, I would place the fullest confidence in any statement put forth by him.

Yours, &c.
(signed) *B. Simpson.*

II.—Mr. Munro.

Memorandum by *J. Munro,* Esq., Manager, Darjeeling Chinchona Association, Pomong.

Referring to the letter of the 6th December 1871, from Mr. McIvor, Superintendent, Government Chinchona Plantation, to the Commissioner of the Nilgiris, with enclosures.

1. From Mr. McIvor's letter I see that he calls in question the statements made by me before the Bengal Chinchona Commission at Rungbee in February 1871, and flatly denies that the Darjeeling Chinchona Association received any plants from the Nilgiris in my time, and asserts that the last supply of plants from the Nilgiris was 10 months in Bengal before my arrival there.

2. My reply will be as short as possible.

3. At paragraph 3 of his letter Mr. McIvor says:—"It is quite certain, from a careful examination of the records, that Mr. Munro never received any cuttings from the Nilgiris. In fact, Mr. Munro did not arrive at Pomong until December 1863, or when the original plants sent from the Nilgiris as stock for the Sikkim plantations had been nearly two years, and the last supply fully 10 months in Bengal." Mr. McIvor is quite correct as to the time of my arrival. I arrived in Darjeeling on the 11th of December 1863. I do not know what records Mr. McIvor had examined so carefully, but I would respectfully suggest that he examine his own account books (I presume he keeps books), and if he does not find there that he despatched four Wardian cases of chinchona plants to Bengal in the beginning of 1864, and that he was paid for the same in June 1864, all I can say is, that such entries ought to be there.

For it is quite certain that the Darjeeling Chinchona Association did get four Wardian cases containing *chinchona* plants, *labelled C. Succirubra, C. Micrantha*, and *C. Condaminea,* from the Nilgiris, and that they arrived in Darjeeling on the 3rd of March 1864, or two months and-a-half after my arrival there. I also got four Wardian cases from Ceylon at the same time containing principally *C. Succirubra,* and a few plants of *C. Officinalis,* very different plants from the Madras plants. As Mr. McIvor might again call in question my unsupported evidence, I enclose herewith a note from our present secretary* of the different payments made to Mr. McIvor for plants, which speaks for itself. Those plants, which arrived in Darjeeling on the 3rd of March, and for which Mr. McIvor was paid 256 rupees on the 30th June 1864, were the plants referred to by me in my evidence before the Chinchona Commission, quoted by Mr. McIvor in paragraph 1st of his letter.

* Mr. Lloyd.

4. That statement, I repeat, is substantially correct, and was made by me in support of my views on canker, and not with any view or intention of detracting anything from the glories of the Nilgiris or their able superintendent; nor was I aware (until Mr. Broughton, a member of the Commission, indignantly denied it) that the existense of canker there was denied. Indeed, I was then, as I still am, under the impression that Mr. McIvor during his short visit to Pomong, and in answer to a direct question from me, admitted that they had canker to a limited extent. I am also under the impression that it occurs in their native country; but, be that as it may, certain it is that the Madras plants which reached me on the 3rd March 1864 (of the first consignments I know nothing, having only arrived in time to see the death of the last of them, seven plants), and which were very stunted, having been used as *stock plants* before they were dispatched, as the frequent marks of the knife on them fully testified, showed symptoms of the

the disease we have since learned to call canker, as soon as it could be distinguished from injuries received on the journey. The Ceylon plants were long succulent shoots that had never been topped.

I do not affirm that they were afterwards free of canker.

5. At paragraph 4 Mr. McIvor quotes another statement made by me before the Chinchona Commission, namely, "that my present plantation of 500,000 plants of *C. Succirubra* were raised by cuttings from 92 plants," and says: "This is an error, as I supplied a quantity of excellent seeds to the proprietors of the Pomong plantations, Mr. Lloyd and Colonel Angus. These seeds germinated freely, and probably produced 50,000 to 100,000 plants."

This statement, which I have no doubt is quoted correctly, is not very happy in its wording, and ought to be "at least 500,000 plants of *C. Succirubra* now in permanent plantations were raised by cuttings (including layers, eyes, &c. &c.) from 96 (not 92) plants." But this does not alter its meaning in the least for the purpose for which it was made, namely, to point out to the Commission the effect such treatment must of necessity have on weakening the constitution of a forest tree; an effect from which they very soon recover, however, when placed in a favourable situation.

6. The above would scarcely be worth noticing, but that Mr. McIvor tries to damage the whole of my evidence by making some of my statements appear false. My monthly returns will show any whom it may concern the number of plants, cuttings, &c., from the beginning to date.

My return for December 1870, or previous to the sitting of the Commission, shows as follows:—

C. Succirubra plants in permanent plantations - -	8,67,400
Ditto - ditto in nursery beds for ditto - -	6,67,331
Ditto - ditto in stock - - - - -	15,000
TOTAL - - -	15,49,731

So that my statement in round numbers of 500,000 was considerably within the mark, and left ample room for a good deal more than Mr. McIvor's seeds, even at his own estimate of them. The produce of his seeds, as soon as they were ready, were planted out with others in 1870; and I hope Mr. McIvor will not doubt my word when I say that I tried to the utmost of my poor abilities and the rude means at my disposal to make the most of them; but I think he is rather hard on me in his estimate of the number of plants I ought to have raised from them. He takes care not to mention the quantity of seeds sent. I will do so for him; it was of *C. Succirubra* ¼ oz.; and Mr. McIvor, in his "Notes on the Propagation and Cultivation of the Medicinal Chinchonas," published in 1867, page 6, paragraph 12, says: "One ounce of clean seeds produces on an average from 20,000 plants to 25,000 plants," so that, "instead of from 50,000 to 100,000," his ¼ oz. would produce from 5,000 to 6,250 plants only.

7. The remainder of Mr. McIvor's letter refers principally to the Government plantations, and does not concern me much; but as I have a few plants here of *C. Officinalis* and its varieties, and of *C. Pahudiana*, I may remark with reference to Mr. McIvor's statements at paragraph 7 of his letter. After stating that the principal stock of *C. Officinalis* had been raised from seeds from Ceylon, he says, "And it is worthy of note that the entire stock of this species has been so seriously affected with canker as to cause the cultivation to be abandoned. The Sikkim stock of *C. Pahudiana*, raised solely from Java plants and seeds, has also been destroyed by canker." This is a bold assertion, and t is certainly new information to me that the one was abandoned *through*, or the other destroyed *by* canker; but as I presume he refers to the Government plants, I leave the gentleman in charge of them to digest it. We have a small patch of each species here, as also of *C. Micrantha*, the latter raised solely from Madras plants; we discontinued propagating the whole of them from a very early stage, not because of *canker* (which is only a mare's nest discovered by Mr. McIvor), or because of any other disease, but simply because of their prospects from a commercial point of view. They are not destroyed, but are not worth wasting money on, and the climate of Sikkim does not appear to be very suitable to either of them. They are not the only species, however, that Mr. McIvor has forbidden to grow in Sikkim; if I am rightly informed (I write from hearsay), he in one sublime sentence pronounced the whole of our *Succirubra* to be dying out also, and gave them three years to take themselves out of existence, Pomong, I suppose, included. Such a statement made by any man, after seeing the *Succirubra* plantations here, simply deserves contempt.

8. To prevent any confusion between the Government and private plantations by the term "the Sikkim plantations" used by Mr. McIvor, I beg to say that my remarks in the foregoing, as well as before the Chinchona Commission, refer to the plants under my own charge only. The Government officers are perfectly competent to answer for themselves and their plants.

9. In conclusion, I would most respectfully observe that I make no claim or pretension to Mr. McIvor's ability or experience. He has more experience in his profession in general, considerably more so in India, and three years more in chinchona cultivation than I have.

All I contend for is the truth of my statements, which I think I have sufficiently proved; and as Mr. McIvor's statement at paragraph 3 of his letter is calculated to do me injury, I will consider it only an act of justice on the part of Government to give the same publicity to this as they did to Mr. McIvor's statements, and I consider myself entitled to an apology from that gentleman for his rash and unwarranted statements.

Darjeeling Chinchona Association,
3 July 1872.

Dear Sir,

You ask me if there are no entries of money paid to Mr. McIvor for chinchona plants. I have looked and find the following:—

30th June 1864.

To Mr. McIvor of Madras—

	Rs.	*a.*	*p.*
Purchase of plants	256	–	–
Inland carriage	8	12	–
Freight	40	–	–
TOTAL *Rs.*	304	12	–

30th April 1863.

			To amount remitted to Mr. McIvor for plants			100	–	–
31st May 1863.	Ditto	–	ditto	–	ditto	200	–	–
30th June 1862.	Ditto	–	ditto	–	ditto	200	–	–

There are also references in the minutes and other proceedings and complaints against Mr. McIvor for the bad plants he had sent from Ooty.

Yours, &c.
(signed) *W. Lloyd,*
Darjeeling Chinchona Asssociation.

J. Munro, Esq., Superintendent.

III.—Mr. Jaffrey.

Memorandum on Chinchona Canker in British Sikkim.

I took charge of the Government chinchona at Sinchul in August 1862. Found a disease in *Chinchona Succirubra,* but, from its peculiar type, was some time before coming to the conclusion that it was canker.

2. I received, during April 1863, 327 plants, consisting of various species of chinchona from the Nilgiris, amongst which canker was fully developed.

3. Was, during 1863, consulted by the late Charles Barnes, Esq., of the Darjeeling Chinchona Association, with reference to a consignment of chinchonas received from the Nilgiris. Observed in the Wardian cases seven or eight sickly specimens; attributed the destruction of the plants at the time to their weakness and the wretched soil in which they had been transmitted.

4. *Chinchona Pahudiana.*—Cultivation was stopped by order of Government, it being considered a useless species; 1,000 plants were killed on the morning of the 16th January 1864 by frost. A small plantation of this species has been retained, so that it should not be lost. The plants are from 15 to 19 feet in height at this time (1st July 1872); canker has nothing to do with the disappearance of this species.

5. *Chinchona Officinalis.*—Cultivation has been held in check in consequence of the climate of Rungbee having been found unsuitable to their wants; canker in this species has been the exception, not the rule.

6. *Chinchona Calisaya var. Josephiana.*—I am not aware of having received by name at any time this variety of *chinchona.* I received eight plants of *C. Calisaya* at Sinchul in 1862, and named as such. I recollect of pointing out to the late Dr. Anderson a few strong plants amongst the seedlings of *Java C. Pahudiana* as being botanically like the variety *Josephiana.*

(signed) *A. T. Jaffrey.*

Government Cinchona Cultivation.

IV.—Mr. Gammie.

From *J. Gammie*, Esq., Resident Manager, Government Chinchona Plantation, Rungbee, to *G. King*, Esq., M.B., Superintendent, Botanical Gardens, and in charge of Chinchona Cultivation in Bengal, dated Mongpoo, 5th July 1872.

In forwarding the remarks of Messrs. Jaffrey and Munro on the introduction of canker to British Sikkim, I beg to state that I can say nothing on the subject from personal experience, as I did not arrive in India till December 1865. I have every reason to believe that canker showed itself in the plants immediately after their arrival from Madras, but at the same time I think that even had quite healthy plants been received there would have been more or less canker in the Sikkim plantations, but that it is not a disease to cause alarm, for it very seldom kills the plants. As a case in point, I may mention that Mr. McIvor when at Rungbee wished to pull up a plant of *C. Calisaya*, which he said had been killed by canker, for the purpose of showing the Chinchona Commission the deadly effects of the disease, as had been previously expounded by him. Mr. Clarke, the Officiating Superintendent, would not allow him to do so, as he denied it was dead, and wished to see whether he or Mr. McIvor was right. Mr. Clarke gave him permission to pull up any other canker-stricken plant he chose, but to the best of my recollection Mr. McIvor did not act on the permission. This particular plant is alive to this day, and will probably live for many years to come.

2. As Mr. Mann is absent on leave, and has not the opportunity of defending himself, I beg leave to state that Mr. McIvor has, in my opinion, misunderstood the statement made by Mr. Mann, that "10 per cent. were old, exhausted plants from the Nilgiris." Mr. Mann, in my opinion, meant that they had been exhausted by constantly being cut for propagation here, and not that exhausted plants had been sent from the Nilgiris.

3. I am surprised at Mr. McIvor coming to the conclusion that "it appears to be assumed that the Sikkim plantations were stocked with plants from the Nilgiris only," for the receipt of seeds from whatever source, and the results, were generally published in the chinchona reports, as he himself partly shows.

4. Mr. McIvor is quite mistaken in his conclusion that the cultivation of *C. Officinalis* was abandoned on account of canker, and that *C. Pahudiana* was destroyed by the same disease. *C. Officinalis* certainly died out, but from the root, and not from what I understand to be canker, which affects the bark, and not the root.

5. I am not aware where Mr. McIvor got his information, "that only one plant of the Java stock of *Calisaya* was in existence at the time of his visit to Sikkim in 1871," but certainly it was not from a reliable source, for the original Java stock was not kept separate from the stock received from other places, and it is quite impossible for any one to tell with certainty the origin of all the plants. However, at the time of Mr. McIvor's visit there were in permanent plantations not fewer than 8,000 plants raised from Java seeds.

V.—Mr. Scott.

Memorandum by *J. Scott*, Esq., Curator, Royal Botanical Garden, Calcutta.

I only joined the Government chinchona nurseries in Sikkim, then at Lebong, about the end of December 1864. The so-called canker had infected the plants ere that, and was indeed equally as prevalent as I ever after saw it amongst the plants in the frames or nurseries at Rungbee. I am thus unable to say whether or not the plants originally received from the Nilgiris were infected with that disease. Even supposing, however, that the plants were perfectly free from the disease when lifted and despatched in the Wardian cases from the Nilgiris for Sikkim, I am quite of opinion that it might have originated during the journey if the plants were kept in a wet soil, and a close, hot, and moist atmosphere. I do not think that the disease is at all infectious, or has any fungoid origin, but I consider it simply due to excess of moisture in the soil and atmosphere.

LETTER referred to in Enclosure No. 2.

From *John Scott*, Esq., Officiating Superintendent, Botanical Garden, and in charge of Chinchona Cultivation in Bengal, to the Officiating Secretary to the Government of Bengal, General Department.

Royal Botanical Garden, 8 August 1872.

WITH reference to Dr. King's report, of the 12th July 1872, on the introduction of the Chinchona bark disease, I have the honour to inform you that subsequent to the submission of that report Mr. Davison (lately an assistant to Mr. Broughton, Quinologist to the Madras Government,) called on Dr. King, and in the course of conversation he incidentally noticed the occurrence of canker on the Nilgiri chinchonas. Dr. King was thus induced to ask Mr. Davison for a memorandum on the condition of the Government chinchona plantations there as regards that disease. I now beg to submit a copy of Mr. Davison's memorandum (received this day), which I may remark is strongly confirmative of Mr. Munro's statement to the Chinchona Commission, "that canker was imported into the Chinchona plantations, Sikkim, from those on the Nilgiris."

2. "With reference to canker," says Mr. Davison, "in the Government chinchona estates at Neddiawuttum, I may state that I have never paid very close attention to the subject, so my information may be rather scanty; but what I can give I believe to be strictly correct. One form of disease that I have observed seems to be confined to the lower portion of the tree; the bark just above the surface of the soil cracks; the cracks, I think, generally radiating from a common centre; the wood under the cracked part rots, the rotting going deeper, until it reaches the pith; if the rotten wood is closely examined, it will be found to contain a minute fungi, similar in appearance to ordinary mould. The second form is when the bark dries (but does not crack); sometimes in patches along the trunk, sometimes up one entire side of the tree. I believe Mr. McIvor always makes it a point to have all trees suffering from either form cut down on the first appearance of their flagging. This is about all the information I can give you on the subject."

Enclosure 3, in No. 16.

From *A. O. Hume*, Esq., C.B., Secretary to the Government of India, to the Secretary to the Government, Madras.

Sir, Simla, 1 October 1872.

I AM directed to acknowledge the receipt of your letter, dated 11th January 1872, and in reply to forward, for the information of his Excellency the Governor in Council, copy of a letter* from the Government of Bengal (with enclosures), which, in the opinion of the Government of India, leaves little doubt of the correctness of the assertion, that canker "is shown to have existed in the plants originally sent up from the Nilgiris as stock for the Sikkim plantations."

* No 3096, dated 6th ultimo.

2. Your letter, together with the reply of the Government of Bengal with the enclosures of both, will now be published in the Supplement to the "Gazette of India." Paragraphs 3 and 4 of the late Mr. Breeks' letter to your address, No. 91, dated 13th December 1871, will, however, be omitted, as they appear to the Governor General in Council to be objectionable, as embodying a personal attack upon a Secretary to Government, based on a statement contained in a letter signed by him in his official capacity.

I have, &c.
(signed) *A. O. Hume.*

— No. 17. —

(No. 38—Revenue.)

From the Secretary of State for India to the Government of India.

My Lord, India Office, 9 October 1872.

Para 1. I HAVE received, and considered in Council, your Excellency's Despatches, dated 5th August (Nos. 10, 11, and 13) 1872, on subjects relating to the cultivation of Chinchona in British Sikkim, and to the utilisation of the harvests of bark.

2. I am

2. I am fully impressed with the great importance of bringing the use of the Chinchona alkaloids within the reach of all classes of the people of India, and, from the first introduction of Chinchona cultivation, my predecessors have repeatedly urged this object upon the attention of your Government and of that of Madras, and have insisted that mere questions of commercial success are insignificant in comparison. Mr. Broughton was appointed as quinologist to the Madras Government, mainly with a view to the discovery of a preparation of the febrifuge which could be manufactured at so cheap a rate as to be within the means of the poorest people. His investigations have now made very satisfactory progress, and his so-called "amorphous quinine," prepared on the Nilgiri Hills, has already cured several hundred patients to whom quinine would have been unattainable.

3. The progress of the Sikkim plantation has certainly also reached the point when manufacture should commence, and I concur with your Excellency's Government that a competent analytical chemist should now be specially entrusted with the very responsible work connected with the analysis of the bark, and the manufacture of a cheap and efficacious febrifuge.

4. In my Despatch, dated 14th September (No. 65) 1871, I suggested Dr. Simpson as the most competent person in India to whom the operations could be entrusted, and your Government concurs in my estimate of his qualifications. But you now inform me that Dr. Simpson has declined the appointment on the terms proposed to him, which were a salary of 1,000 rupees a month, and the condition that he should reside at Rungbee. I am of opinion that Dr. Simpson's services should still be secured if possible. At the same time, it is just that he should be ensured against loss of income in exchanging one post for another; and it seems probable that he was unwilling to make the exchange on the proposed terms, because such loss would have been incurred. In that case there can be no difficulty in making such an arrangement as would secure Dr. Simpson's services without injuring his prospects.

5. The employment of Dr. Simpson is, in every way, preferable to the course proposed by the Government of Bengal, of giving the appointment to a chemist to be selected by me in England. Quinology is a branch of chemical science which has been studied and mastered by very few, and the proposed salary is insufficient to tempt any man of established reputation as a quinologist. It would, therefore, be necessary to select an untried man, who might have excellent testimonials as an analytical chemist, but who would have no special knowledge of quinology. If there was no alternative, this course must necessarily be taken; but when, in the person of Dr. Simpson, your Government has the services of an analytical chemist with a special knowledge of quinology acquired in the laboratory of such a master of the subject as Dr. De Vrij, at your command, I cannot see the necessity for engaging a less efficient person at considerably greater expense.

6. I would suggest that Dr. Simpson should again be requested to undertake the duty of quinologist in British Sikkim, and that his additional allowances as quinologist should ensure him against any loss from the exchange of his present appointment. It is not necessary that he should reside at Rungbee; and his laboratory might more conveniently be at Darjeeling, whence he would be expected to pay constant visits to the plantation. Mr. Broughton's laboratory is at Ootacamund, several miles distant from the principal Chinchona plantations on the Nilgiri Hills; but this arrangement has in no way impaired the efficiency of his investigations, while there are several advantages in being able to work in a central position.

7. I herewith transmit a copy of the instructions which were given to Mr. Broughton on his appointment. The interesting points connected with the cultivation, on which light might be thrown by the investigations of an analytical chemist, should also engage the attention of the quinologist in British Sikkim; but it should be impressed upon him that his most important duty is the manufacture of abundant supplies of a cheap and efficacious preparation of the Chinchona febrifuge.

 8. The

8. The two packets of Chinchona quill bark, referred to in your Excellency's Despatch, dated 5th August (No. 10) 1872, have been received, but they have been torn open on the way, and it is feared that they may have received some injury. Dr. De Vrij has been requested to undertake the analysis.

I have, &c.
(signed) *Argyll.*

— No. 18. —

(No. 16—Agriculture.)

From the Government of India to the Secretary of State for India.

My Lord, Simla, 9 September 1872.

SINCE the date of our Despatch in this Department, No. 11 (Agriculture and Horticulture), dated the 5th ultimo, in which we requested your Grace to take steps for the engagement of a gentleman to superintend and direct the manufacture of quinine in Bengal, Dr. King, the Superintendent of the Botanical Gardens at Calcutta, has been compelled by ill-health to proceed to England on leave for a year. It has been suggested that the gentleman selected might with advantage be requested to place himself in communication with Dr. King in England, before starting to take up his appointment, in view to being furnished with information which will prove useful to him in the discharge of his duties in this country.

2. The suggestion seems a good one, and we would recommend it to your Grace's favourable consideration. Dr. King's address in England will be—

Care of Messrs. Henry S. King and Company,
65, Cornhill, London.

We have, &c.
(signed) *Northbrook*, &c.

— No. 9. —

(No. 42—Revenue.)

From the Secretary of State for India to the Government of India.

My Lord, London, 22 October 1872.

1. I HAVE received your Excellency's Despatch, dated 9th September 1872 (No. 16), on the subject of the appointment of quinologist, which I have already discussed in my reply to your previous Despatch of the 5th of August.

2. I herewith enclose a copy of a letter from Dr. De Vrij, the eminent Dutch quinologist, consenting to analyse the bark sent from Darjeeling, and in which he furnishes me with his opinion of the qualification of Dr. Simpson for directing and superintending the manufacture of Chinchona alkaloids in Bengal.

I have, &c.
(signed) *Argyll.*

Enclosure in No. 19.

From Dr. *De Vrij* to the Under Secretary of State for India.

The Hague, 7 October 1872.

IN reply to your letter of the 4th instant, I have the honour to inform you, that I will undertake with pleasure the analysis of some red Chinchona quill bark which has been sent from British Sikkim for that purpose.

It is with the greatest satisfaction that I feel myself competent to furnish to his Grace the Secretary of State for India my opinion about the qualifications of Dr. Simpson as a quinologist. After having been introduced to me by my lamented friend Dr. Anderson, Dr. Simpson came on the 26th of January 1870 to the Hague, and from that time till the 9th of March he was daily busily occupied in my laboratory to analyse all sorts of Chinchona bark under my own auspices. I had therefore ample opportunity to become acquainted

acquainted with his peculiar aptitude for this branch of science, so that when he left me to return afterwards to India, I felt firmly convinced that if the Government of India gave him an appointment wherein he could apply his special knowledge of practical quinology, it should have conferred a great boon to the ultimate success of the introduction of Chinchona cultivation in British India. I have therefore deeply deplored that till now the services of that office have not been required in that direction; for if they had, not only the unhappy failure of the preparation of poisonous alkaloids would not have happened, but also the science of quinology would have been greatly benefited.

I received yesterday, in good order, the copy of Don José Triana's new work on Quinology, and I request you to forward my best thanks to his Grace the Duke of Argyll for this valuable present.

(signed) *J. E. De Vrij.*

— No. 20. —

(No. 46—Revenue.)

From the Secretary of State for *India* to the Government of India.

India Office, 21 November 1872.

1. With reference to your Excellency's Despatch, dated 5th August (No. 10) 1872, sending samples of red Chinchona quill bark for analysis, I herewith transmit a copy of a letter from Dr. De Vrij, the eminent Dutch quinologist, reporting the result of his analysis of these samples. If the bark was the product of pruning the trees, you will perceive that Dr. De Vrij considers the result to be satisfactory as the total yield is large enough to make it worth while to extract it from the green bark on the spot. He adds that 1,000 lbs. of green bark equal to the samples sent home will give 15 to 16 lbs. of mixed alkaloids.

Dated 30th October 1872

I have, &c.

(signed) *Argyll.*

Enclosure in No. 20.

From Dr. *J. E. De Vrij* to the Under Secretary of State for India.

Sir, The Hague, 30 October 1872.

On the 12th of October last I received two samples of red chinchona quill bark, mentioned in your letter of the 4th instant, from the plantation in British Sikkim. On both the samples was fixed an identical label, containing—

"No. 11 A.—Sample of red chinchona quill bark from Rungbee, referred to in Agricultural Despatch to Her Majesty's Secretary of State, No. 10, dated the 5th August 1872."

Although there was no difference in the labels, the two samples were not quite identical in appearance, as the one contained more broken bark than the other. In order to distinguish them, I denominated the sample consisting chiefly of broken bark, with A., and the other with B.

Result of the Quantitative Analysis of A.

Total amount of alkaloids, 5·56 per cent., of which 2·23 are soluble in ether and 3·33 insoluble in ether.

The investigation of the 2·23 soluble in ether proved that they consisted of 0·52 pure quinine, and 1·71 amorphous alkaloid, containing the new alkaloid recently discovered by Dr. Hesse, and called by him quinamine.

The investigation of the 3·33 insoluble in ether proved that they consisted of 1·58 chinchonidine and 1·75 chinchonine.

Conclusion.

One hundred parts of the bark contained in sample A. contain—

Quinine	0·52
Amorphous alkaloid	1·71
Chinchonidine	1·58
Chinchonine	1·75
Total amount of alkaloids	5·56

RESULT of the Quantitative Analysis of Sample B.

Total amount of alkaloids, 5·53 per cent., of which 2·43 are soluble in ether and 3·10 insoluble in ether.

The investigation of the 2·43 soluble in ether proved that these consisted of 0·63 pure quinine and 1·80 amorphous alkaloid containing quinamine.

The investigation of the 3·10 insoluble in ether proved that they consisted of 1·18 chinchonidine and 1·90 chinchonine.

Conclusion.

One hundred parts of the bark contained in sample B. contain—

Quinine	0·63
Amorphous alkaloid	1·80
Chinchonidine	1·18
Chinchonine	1·92
	5·53

The comparison of the results of the analysis of both barks proves that they are almost identical. The slight difference which exists between them is confirmed by the molecular rotation of their mixed alkaloids. The molecular rotation of the mixed alkaloids of sample A. was found to be = 11·2 dextrogyre. The molecular rotation of the mixed alkaloids of sample B. was found to be = 38·5 dextrogyre.

General Remark.

If these barks are, as I suppose, only the product of pruning the trees in the plantations, I consider the result not unsatisfactory; for although the bark is not fit for the manufacturing of quinine, considering the small amount of this alkaloid contained in it, it is perfectly adapted for manufacturing the mixed alkaloids (less properly called amorphous quinine) in India. The total amount of alkaloids in these barks is considerable enough to extract them directly from the green bark, which can be done by coolie labour under the superintendence of a practical quinologist. For this manufacture nothing is wanted but water, hydrochloric acid, and caustic soda, and by their judicial application 1,000 pounds of green bark will afford between 15 and 16 pounds of mixed alkaloids equal to the sample which I have the honour to include in this letter.

I am, &c.
(signed) *J. E. De Vrij.*

— No. 21. —

(No. 11—Revenue.)

From the Secretary of State for India to the Government of India.

India Office, 4 June 1873.

1. WITH reference to your Excellency's Despatch, dated the 5th of August (No. 11) 1872, and to the telegram of the 22nd February 1873, I have taken steps to engage an experienced chemist for the appointment of quinologist to your Government, for service on the Chinchona plantations in British Sikkim.

2. After careful inquiry I have selected Mr. C. H. Wood for this important post, a gentleman who has been strongly recommended to me by Professors Frankland and Redwood, by Mr. Hanbury, and Messrs. Corbyn. As Mr. Wood is not only a scientific analytical chemist, but has also had charge of the laboratory and manufacturing department of a large firm of wholesale druggists, his former experiences qualify him to take charge of a febrifuge manufactory on a large scale, as well as to conduct scientific analysis of the bark.

3. Mr. Wood has been informed that his salary will be 1,000 *l.* a year, and either a house rent-free, or an allowance for house rent; that he will be expected to sign an agreement undertaking to serve for four years, and that the same privileges as regards leave and pension will be conceded to him as are enjoyed by officers in the Education Department.

4. Mr. Wood will be instructed to leave England in the course of next autumn; and he has been directed to prepare an estimate for a suitable laboratory to be sent out with him. It is desirable that I should be informed at once if, in the opinion of your Excellency's Government, there are any other points to which Mr. Wood's attention should be drawn before leaving this country, or any other materials or appliances that he should be directed to obtain. I herewith transmit a copy of the letter which I have caused to be addressed to Mr. Wood on the subject of his appointment.

29 May 1873.

(signed) *Argyll.*

Enclosure in No. 21

From the Under Secretary of State for India to *C. H. Wood*, Esq.

Sir, London, 29 May 1873.

I AM directed by the Secretary of State for India in Council to inform you that his Grace has been pleased to offer you the appointment of quinologist to the Government of India, for service at the chinchona plantation in British Sikkim.

Your salary will be 1,000 *l.* a year, and either a house rent free, or an allowance for house rent; and you will be expected to sign an agreement undertaking to serve for four years; your privileges as regards pension and leave will be similar to those conceded to the officers of the Education Department.

The principal object of your appointment is to obtain the services of an experienced analytical chemist in discovering the best and cheapest form in which an efficient febrifuge can be extracted from the chinchona bark grown in British Sikkim, and in superintending the manufacture of such febrifuge on a large scale.

You will also be expected to conduct analyses of the chinchona bark, with the view of putting the cultivation of chinchona, as a crop, on a really sound and scientific footing. Such analyses should be directed to the discovery of the variety of bark which naturally yields most alkaloid in the climate of Sikkim, and at what seasons, and under what circumstances of soil, exposure, elevation, temperature, and cultivation, including manuring, the amount of alkal oid, available for extraction, is or can be increased. It will be necessary that you should be provided with a laboratory to enable you to conduct these experiments, the materials for which can only be procured in this country. I am, therefore, to desire that you will prepare a detailed estimate, including a list of the articles required, with the cost of each, for submission. You should also acquaint yourself with Dr. De Vrij's method of extracting the alkaloids by the use of hydro-chloric acid and caustic soda, and consider its advantages as regards efficacy and economy, when compared with Mr. Broughton's method, in which large quantities of alcohol must be used. The best mechanism for crushing and pounding the green bark should also receive your careful attention, and I request that you will submit a report upon these points before leaving this country.

The strong recommendations representing your fitness for this important post which have been received from Professors Frankland and Redwood, from Mr. Hanbury, and Messrs. Corbyn, have satisfied the Duke of Argyll, in Council, that you possess the necessary qualifications; and I am directed by his Grace to impress upon you the great importance which both the Home authorities and the Government of India attach to the zealous and efficient performance of the duties which will be entrusted to you.

I am, &c.
(signed) *Herman Merivale.*

— No. 22. —

From the Government of India to the Secretary of State for India.

My Lord Duke. Simla, 7 July 1873.

IN continuation of our Despatch, No. 13, dated the 5th August 1872, we have the honour to forward herewith copy of a letter from the Government of Bengal, No. 421T, dated the 30th May last, transmitting a report by Dr. Henderson on the Chinchona plantations in British Sikkim for 1872-73, together with our orders* thereon.

(signed) *Northbrook.*

* No. 208, dated 21 June 1873.

Enclosure 1 in No. 22.

From the Officiating Secretary to the Government of Bengal to the Secretary to the Government of India.

Sir, Darjeeling, 30 May 1873.

I AM directed to submit to the Government of India, in the Department of Agriculture, Revenue, and Commerce, the enclosed letter, dated the 10th instant, and enclosure, from Dr. Henderson in charge of chinchona cultivation in Bengal, being the 11th Annual Report on the Chinchona Plantations in British Sikkim, for the year ending 31st March 1873.

2. In laying this Report before the Governor General in Council, I am to state that the Lieutenant Governor has very recently inspected the plantations himself, and found them in a satisfactory condition. When his Honor saw them the year before last, he at once noticed, without any professional knowledge of his own, that the canker did not seem to kill the trees, but only to affect the particular branch attacked, fresh and vigorous shoots coming out below; and the result of his late inspection, and Dr. Henderson's Report, has proved this to be now quite clear. Even when the main stem is affected with canker and is cut down, new shoots come up more vigorous than before. His Honor is therefore much astonished that a gentleman of professional experience should ever have assured Government that this canker would be fatal to the plantations.

3. The Lieutenant Governor found the plantations without doubt very flourishing in all the places where the soil is favourable to the cultivation, but the appearance of the garden, as a whole, is *patchy*, some parts being favourable to the growth and some not. The young plants grown from seed seem very healthy. The Lieutenant Governor also visited the garden of the Darjeeling Chinchona Association, the older portion of which is very good indeed, and seems likely to repay the proprietors for their trouble and outlay. His Honor has no doubt that the experimental cultivation of chinchona should be continued both in these hills and in several other places in our moist eastern districts; but he doubts if it is desirable to extend too much the area of the Government plantations at Rungbee, as, owing to the variable quality of the soil and plantations, it is doubtful whether it will prove remunerative in the hands of Government.

4. The Lieutenant Governor thinks that the plantations should be mapped and measured as recommended by Dr. Henderson in paragraph 7; and, if the Government of India accepts the suggestion, this will be done. The roads about the plantations should also be kept in proper repair on such plans as Dr. Henderson may find most suitable. The direct route to the plains by the valley of the Teesta referred to in paragraph 17 of the Report is being examined with a view to permanently opening it out; the establishment of this route will be advantageous for many purposes.

5. As regards the questions of distance of planting, pruning, and the experimenting with various kinds of chinchona, referred to in the Report, his Honor thinks that they may very well be left to the discretion of the Superintendent, and if different officers try different plans, so much the better, as experiments in different modes of culture are wanted. The Lieutenant Governor is inclined to believe that pruning or no pruning comes to much the same thing in the end, as when trees are healthy and sufficiently close together, their habit is to prune themselves, and to grow high and straight like fir trees in a wood. The question, then, will be whether the side branches are worth pruning and gathering before they decay; and that will mainly depend on the experiments of the quinologist when he comes, and will be decided in communication with him. His Honor trusts that there will be no delay in the arrival of the quinologist, as bark is waiting for him and spoiling, and there will be a large crop of it next cold season. A house on the plantations will be put in order for him, and the Superintendent will be requested to ask Mr. Gammie, the head gardener, to have the necessary plain furniture made up for it.

I have, &c.
(signed) *C. Bernard.*

Enclosure 2, in No. 22.

From *George Henderson*, Esq., M.D, Officiating Superintendent, Botanical Gardens, and in charge of Chinchona Cultivation in Bengal, to the Secretary to the Government of Bengal.

Rungbee, 10 May 1873.

I HAVE the honour to submit the Eleventh Annual Report on the Chinchona Plantations in British Sikkim, being for the official year ending the 31st March 1873.

2. *The general condition of the plantation* is on the whole extremely satisfactory. I came to inspect them with an impression that the opposite was the case; but after going through them, and seeing a fair proportion of the entire area, I have no hesitation in saying that *C. succirubra*, at least, promises to be a splendid success in Sikkim, as far as the growth and health of the trees are concerned, and there is every prospect of *C. calisaya* being almost equally successful.

3. Whether or not it will pay to grow chinchona in Sikkim has yet to be determined, and this will perhaps best be done by private companies, whose sole object in forming plantations is to make them a commercial success, and who are, therefore, more chary than Government of making experiments which are not pretty certain to pay.

4. I see no reason now to anticipate failure from any cause whatever, and the canker, from which so much danger was feared, seems to be doing less and less injury ever y year.

It

It has now been clearly established that in Sikkim canker does not kill the plants, nor does it cause any permanent injury, except to the branches actually affected, and is got rid of when these are cut out. The other disease which kills the plant outright, is almost entirely confined to wet localities and clay land, where the soil seems to get water-logged, and it chiefly affects *C. officinalis*, which does not thrive in Sikkim, and the cultivation of which has now been almost entirely abandoned.

5. Many of the old plantations are rather patchy, and show a great many blanks, the ground evidently being in many places unsuitable; but where the ground is good, and has not been over-cropped by the native squatters previous to planting, the trees make splendid growth, and look very healthy.

6. Very satisfactory progress has been made with the work during the past year, and the new plantations are more promising than any of the old ones ever were, chiefly, I think, because the ground towards Rishap (the east end of the plantation) is much better than about Rungbee. Mr. Gammie thinks it is also owing to the fact that all the plants are strong healthy seedlings, instead of weakly plants from cuttings.

7. During the past year a total of 433,000 *C. succirubra* and 95,000 *Chinchona calisaya* have been planted out at four feet apart, instead of six feet as formerly; this gives a grand total of 528,000, or over half a million, planted out during the year, and an area covered of nearly 200 acres. The total number of plants of every kind in permanent plantations amounts to no less than 2,912,275, or very nearly three millions, and they cover an area of about 1,500 acres. It is unfortunate that no proper survey of the ground has ever been made; the survey maps do not give any idea of the area which would require to be shown in diagram form, because much of the ground is exceedingly steep, and some of it almost precipitous. All estimates of the area have been made from the number of plants, and this must give a very near approach to the truth, as they are always put in at regular distances.

8. During the next official year Mr. Gammie expects to increase the area under cultivation to nearly 2,000 acres. Seed, both of *C. succirubra* and *C. calisaya* now ripens every year in great abundance, and there is no difficulty in multiplying plants by seed to any desired extent; these two species are alone being cultivated. There are 16 plants of *C. pitayensis*, but they are as yet very small, and are reserved for propagation. This species is with great difficulty multiplied by cuttings, and until it seeds its suitability for the soil or climate of Sikkim cannot be tested.

9. *The expenditure* sanctioned for the year was 55,618 rupees, of which *Rs.* 50,363. 2. 2. was expended, and to this, I think, should be added *Rs.* 790. 7. of travelling allowance to Dr. King, who went to inspect the Nilgiri plantations; it has, however, been charged to the Botanic Gardens by the Accountant General. The total expenditure on chinchona in Sikkim up to date is 4,98,882 rupees, or within 1,118 rupees of five lakhs of rupees.

10. Up to the present time no return can be said to have been received from the plantation, or merely a nominal one. Last year 5,000 rupees worth of bark was sold in the London market, fetching some of it as high as 2 *s.* per pound, and during the past year 60 cases of bark, containing 4,888 lbs., were again sent to the London market, but as yet no report of the sale has been received. There are 57 cases, containing 3,500 lbs. now in Calcutta, which was ready for shipment to England, but being almost all of third and fourth quality, it will not now be sent, as only first quality bark is to be exported, according to the latest orders. There are about 7,000 lbs. of first and second quality, and a large quantity of quill-bark, now in store at Rungbee. Mr. Gammie estimates that he will have this year about 50,000 lbs. of bark; all this bark is merely the result of pruning and thinning, no systematic cutting of the trees having as yet been commenced. And until bark is actually wanted for manufacture on the spot, or for export, it is a mistake to accumulate it in the damp climate of Sikkim, where it is almost impossible to keep it without moulding.

11. There is one difficulty about these plantations, namely, their inaccessibility from the plains; and as everything depends on very close European supervision, I also look on the scattered, or rather straggling nature of the cultivation, as a great evil, although it was unavoidable, owing to the nature of the ground selected. The distance from Rungbee to Rishap along the top of the plantation, and back through the middle of it, is not much under 25 miles, and can with difficulty be done in one day, and this is to go over an area of only a little more than two square miles, which, if in a compact block, would only have a circumference of about six miles. Probably the area under cultivation has been underestimated. Perhaps it will by-and-bye be necessary, if the plantations are much extended, to build small rest-houses at different points, so as to allow the European officials to live near the spots where work is being carried on; at all events, the houses already built should be kept in good repair, which I fear is a matter of some difficulty in a climate where the air is usually saturated with moisture. In all future buildings I would recommend galvanised iron roofing to be used; it will probably be cheaper in the end, for almost all the Sikkim tea planters are adopting it. Mr. Gammie tells me that practically no difficulty is found in supervising the work, and he does not see any necessity for the rest-houses I propose, as all the European officials get horse allowance.

12. The upper part of the Rungbee, or west end of the plantation, had been rather severely cropped by the natives before chinchona was planted, and the soil was poor.

The new plantations at Rishap are on rich black soil, and promise to be very much better than any of the old, notwithstanding that, as Mr. Gammie tells me, the land there had also been previously cropped for very many years. The yellow hue of the leaves in the old *succirubra* plantations, and the dark green colour of the new, appear to me to show the difference of soil; but Mr. Gammie thinks, as before stated, that the greater vigour of the seedlings has a good deal to do with their more healthy appearance. In selecting ground for future plantations, I think virgin soil should always be preferred. It seems to be a question whether stumps of trees should be rooted out, or left in the ground. I believe it is an advantage to leave them, as they very soon decay, and form manure; and where the timber is of no value, it seems as well to leave it also to lie and rot on the ground. I have been told that dead stumps encourage beetles and other insects, but I do not believe that beetles which breed in dead wood are likely to attack living chinchonas. At Rishap 25 acres were entirely cleared of tree stumps, but it was found not to benefit the chinchonas in any way. There are a good many large solitary trees in the plantation, and I notice that some of the *acacia stipulata* (which, however, is a worthless tree) do not interfere in the least, by their shade or otherwise, with the chinchona plants; but in planting out new ground, all damaged or useless timber should, I think, be cut down, as when left solitary they are apt to be blown down by the wind, and on several occasions after a storm I have seen damage done in this way.

13. Throughout the plantations there are numerous blanks which will take a very large number of plants to fill up. I do not allude to spots where the trees have died out from unsuitability of soil; such places had better be planted with toon or some other useful timber tree, but I refer to places where single trees have been damaged or choked by grass, and have not been replaced at the time. Mr. Gammie proposes to fill up these blanks next year. The old nursery ground would take up a good many plants if they will now grow there; and, if not, forest trees could not be planted.

14. In going through the plantations I was much struck with the fact that, although an enormous quantity of seed has been self-sown since 1870 (up to which date every seed was most carefully gathered), not a single self-sown seedling was to be seen. In the Proceedings of the Madras Government, Revenue Department, dated 26th May 1871, stress is laid on this fact as showing that the climate of Sikkim does not suit chinchona, self-sown seedlings being common in the Neilgherries. Mr. Gammie, however, tells me that he has seen several self-sown seedlings at the lower part of the plantation, one of them growing on a rock in the middle of a stream, and one was pointed out to me a few days ago by Mr. Jaffrey near his house. I have, therefore, no doubt that in a few years they will be nearly as common as they are said to be on the Neilgherries.

15. It is worthy of notice that wherever *C. succirubra* takes a start to grow tall, and begins to lose the bushy appearance which many of the four and five year old trees have, it gets at the same time a more vigorous and healthy look and the leaves get darker in colour. Such trees seem also to be less liable to damage by wind, which usually breaks only the side branches. As stated in former reports, the air in the Rungbee valley is usually quite still, but the spring thunderstorms are often accompanied by severe hurricanes which do considerable damage. On two occasions within a month I have seen large trees have their tops blown clean away, and a number of large chinchona plants snapped across close to the ground. Fortunately such storms are, as a rule, very local, and I am told that this has been an exceptionally stormy year. I notice, however, several trees about the plantation which have had their tops blown off in former years.

16. The success of chinchona seems greatly to depend on the plants making a good start at first. There is a plot of *C. succirubra* at Rungbee which is said to be the oldest of all the plantations, but it is not better than some of the third year's planting, and seems to be quite stagnant. The reason is said to be that it was planted without any digging or other preparation of the ground, and the plants put in were some brought from Lebong, from which cuttings had been taken; old stock plants as they are called.

17. The roads about the plantation are in fair order, but some of the very numerous bridges are rather two narrow to ride along with safety. I think a small gang of men should be specially kept up for the roads and bridges to inspect them, and constantly see that they are in repair. During slack seasons extra men would have to be put on to give a thorough annual repair. I believe there was very lately a road from Rishap direct to the plains by the Teesta valley. It is a pity this has been allowed to get into disrepair, as the distance by that route to the plains is only about 18 miles, whereas by the Darjeeling road it is little short of 50 miles.

18. There is difficulty now in getting timber to repair the bridges, or indeed for any purpose without going a long distance for it. It appears to me that more might be done to preserve the timber trees near the plantation. The workmen must, of course, have land to cultivate, and must be allowed to cut wood for fuel, but they should be prevented from cutting down recklessly either old or young trees of valuable sorts, and all spots unsuitable for chinchona should be planted with useful trees. Even where such spots are rather, or very, inaccessible there is seldom difficulty in sawing up the timber on the spot, and then removing it in planks. Mr. Gammie thinks I exaggerate the destruction of valuable timber near these plantations, and I dare say it is more striking to a stranger than to one who has been living for years in the district. There is hardly a single fine forest tree to be seen along any of the roads which has not been mutilated, and the number of living

stumps

stumps 6 to 10 feet high shows that the trees lately existed. On a late visit to the Arrah district, I was very much struck with the wooded appearance of the country near Jugdispore, and inquired of Mr. Thompson of Beehea, who is the proprietor of the land, how he managed to save the trees, and as the method adopted gives almost no trouble, and is thoroughly successful, I think it deserves to be more extensively tried. The plan of protecting the trees as described to me was something as follows: Every tree worth preserving is entered on the village map, and if cut down or damaged, without special permission, the cultivator is punished, and even if blown down by the wind he must get permission before he can remove it, otherwise he might assist the wind a little when he wanted a particular tree. A nominal charge is made for timber required for agricultural or other purposes. If maps are once prepared on a large scale of all the chinchona reserve, I think every valuable tree or clump of valuable trees should be noted on the maps, so that if the natives damage them without permission the fact can be ascertained by a yearly inspection.

19. *Disease and injury* to the plants is not extensive. In only a very few cases did I see damage by boring insects. In the older plantations there are still many trees affected with canker; but, as already stated, this only injures the branches actually affected, and many of the trees which, I am told, were nearly dead of canker two years ago have now almost entirely recovered. It is also very satisfactory to find that the cankered trees which were cut down close to the ground a year ago have each made three or four shoots 6 to 10 feet high without a vestage of canker, with large leaves 12 by 14 inches and of a dark green colour; these shoots are from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches in girth at the ground, and have beautifully clean bark. Branches affected with canker are usually hide-bound, and the bark is removed from them with great difficulty, but there are some hide-bound trees which have no canker.

20. Owing to the excessive steepness of many parts of the ground, stones rolling down from above have slightly injured the bark of many of the trees close to the ground; besides this, I noticed that a good many are damaged (very slightly, I admit,) by the coolies in clearing away the jungles and digging round the stems. Along the roads one sees here and there the stem of a tree hacked by a Lepcha's knife, as if it had been done wantonly just to try the knife. I think it worth a trial, on a part at least of the plantation, to put a native overseer and a certain number of coolies in charge of a certain area, and let them work all the year round on the same ground, making them responsible for it. The gang would have to be strengthened, of course, during the rains, but the advantage of it would be that a certain number of men would be responsible for the area for which they are told off, and an occasional visit of one of the European officials would suffice to make the men attend to their work. I understand that in some tea plantations a similar plan has been tried, and I know that with native agency, unless one can fix responsibility on individuals for work being done, it never is done properly. I notice both in tea and chinchona cultivation that the nearer to the manager's house the better the plantation looks; and it is particularly, if not solely, for distant parts of the plantation that I would recommend having a certain proportion of a fixed establishment told off and made responsible for a certain block of ground.

21. In April 1872 hail did considerable damage, stripping many of the trees of their leaves, but no permanent injury seems to have resulted. Scarcely a spring passes without a good deal of hail in some part of the plantation. Mr. Gammie pointed out to me a few instances of damage by frost to the *C. succirubra* planted last year on the top of the ridge at Moughpoo; as a rule, the frost-bittten plants were only nipped, and were springing up vigorously from the root; only in a few cases where they killed outright. It seemed strange that all the plants thus affected were in hollows, and not on the ridge; but I suppose the explanation is, that on the ridge there is too much circulation of air to allow of injury by frost, and it is only in the hollows that in the winter nights the cold air settles down and remains stagnant until it falls below the freezing point. I believe the frost is never sufficient to injure any but very young plants.

22. The advantage of *pruning*, and the best distance between the plants, seem still to be matters of dispute. My own opinion is strongly in favour of pruning, and also of very close planting, so as to reduce the necessity for pruning to a minimum. In going over a large plantation, one cannot avoid noticing that the trees, of *C. succirubra* at least, have a tendency to lose their side branches by the wind, or by the weight of water in the rains in exposed situations; this is very marked. The natural habit of the tree seems to be to grow with a few and weak side branches, which, if not cut off or broken off by the wind, ultimately fall of on their own accord. Mr. Gammie says he has found pruning check the growth of the plants, and he is opposed to the practice. Mr. Jaffrey, who is also a careful observer, says he cannot find any evidence that moderate and judicious pruning checks growth, and I am of the same opinion. Some private plantations in Sikkim have been rather closely pruned, and, as far as I can see, with very great advantage to the trees, which, contrary to what one would expect, seem to be thus rendered less liable to damage by wind. The bark of pruned trees is certainly increased in value, and is more easily gathered. Until lately six feet was the distance between the trees on this plantation; it has been reduced to four feet of late, and I would recommend it being still further reduced to three feet, if coolies can then go between the plants to hoe the ground.

Mr. Gammie is to try a few acres this year at three feet apart. As these plantations are experimental, and are not intended mainly as a mercantile speculation, I think we cannot vary the methods of culture too much. I do not think I am wrong in stating that on more than half the plantation there is room for an additional plant between every two, and that these additional plants would benefit the others. Close planting not only tends to keep down weeds, but makes the trees grow tall and straight. It is easy to thin them out as soom as they begin to crowd each other, and the bark got from such thinnings will be very superior to that got from prunings. The appearance of the old stock plants, which are still alive and healthy, although they yielded so many thousands of cuttings, shows that chinchona stands a great deal of cutting without injury. I believe chinchona seldom bleeds when cut. If pruning is to be carried out extensively, I think spring will be the best season, to allow the wounds to heal before the rains, and get covered with new bark before winter. Were pruning carried out systematically, large branches would seldom have to be cut out; but when this is necessary, a long-handled chisel and a hammer will probably be the best instrument to use. At my request, both Mr. Gammie and Mr. Gaffrey have put in writing their views on pruning, and these are appended.

23. *Manuring* has not been very extensively tried as yet; there is great difficulty in obtaining manure of any sort in sufficient quantity. Some English manures have lately been obtained for experiment, but the enormous cost of these delivered in Sikkim renders it utterly hopeless to suppose that they can ever be used with profit. I propose to try the effect of oil-cake this season. Caster-oil cake is particularly valueable as a manure; it may be got in any quantity, and is remarkably cheap.

24. *Sports* and *hybrids*, or what appear to be hybrids, are not uncommon, particularly amongst the *C. calisayas*, and it seems very probable that the per-centage of quinine in the bark of these different varieties may differ considerably, and probably some valuable sorts might be produced by artificial hybridising. It has been found here that seed carefully selected from a single plant of *C. officinalis*, particularly from individuals which depart from the normal type, sometimes give rise to a very great variety of seedlings, and I think more attention should be given to the experimental culture of these, in hopes of getting some which yield more quinine, or are more hardy than the ordinary varieties.

25. *C. succirubra* continues to be the only species which grows with great vigour; and in new plantations of *C. calisaya*, where the success of the latter is at all doubtful, I think a sufficient mixture of *C. succirubra* should be planted in case the other fails. Mr. Gammie has suggested to me that if the different sorts are mixed, the seed will certainly be hybridised; but before they come to that stage, I would expect to see which species was going to succeed, and the other would be cut out,—I am supposing that the plants are to be at three feet apart. After a few years all the seed required for sowing will be produced from a very few plants, especially selected in situations where they thrive best, and when they are least likely to be hybridised.

26. *C. calisaya* thrives almost as well as *C. succirubra* at low elevations, but in the seed and nursery beds the young plants die off in a most unaccountable way. Once they are planted out, however, there is no mortality amongst them, and they thrive almost as well as *C. succirubra*, but do not seem inclined to grow to such a large size, being more bushy. The Java plants of this species have a great tendency to run to seed, and in some cases they are completely covered with fruit, with hardly a leaf on them. Is this a sign of unhealthiness, and does it indicate that these plants are going to be very short-lived? I fear it does. And Mr. Gammie has given up sowing the seed of the Java plants.

27. *C. officinalis* has been tried in every variety of soil and at various altitudes between 3,000 and 5,000 feet, but it makes no growth. I saw some acres of it, about 4,000 feet above the sea, on a private plantation, where the annual rainfall was said to be only 85 to 90 inches, instead of 220 as at Rungbee, but the plants were not a whit better than those at Rungbee. The seedlings of this species, like those of *C. calisaya*, damp off in the seed and nursery beds, and, unlike *C. calisaya*, continue to die off at all ages after being planted out. I have not seen a single plant of *C. officinalis* which is growing vigorously; and as it seems hopeless to attempt its cultivation, it has been entirely given up. Possibly an analysis of the soil here, compared with that on the Nilgiris, where this species thrives, might give a clue to the cause of its failure here.

28. I have inspected the old plantations at Rungyroong, where chinchona was first tried in Sikkim; they have been abandoned for some years, and are now very much overgrown with jungle. I have great doubts whether it is advisable to spend any money in clearing away this jungle, as it would cost several hundred rupees, and would probably have to be repeated a number of times before the chinchonas could keep it down of themselves. I am inclined to think that the money required to clear the jungle at Rungyroong might be more profitably spent at Rishap. I think this may be left to Mr. Gammie's discretion.

29. When systematic cropping of the plantations is commenced, I believe the best system will be to thin out the trees, cutting them close to the ground, but always leaving a sufficient

a sufficient number to give shade, and thus keep down weeds. Afterwards it will probably be advisable to allow three shoots to grow from each stump, and cut these in succession. It is remarkable how soon the shoots from *C. succirubra* stumps attain nearly the same size as the original trees. I have examined a large number which were cut close to the ground, and after three or four years they appear to me to have been rather improved than otherwise, and the fresh shoots are almost equal in size, and much more healthy in appearance, than trees of the same age which have never been cut. Very few *C. calisayas* have as yet been cut, and we do not know how they will stand it. *C. officinalis* is usually killed by being cut down, not one plant in a hundred ever again sending out young shoots.

30. During the past year Mr. Biermann, the second gardener, has had to take sick leave to England, and Mr. Kennedy, who was formerly employed here, has taken his place. Mr. Gammie speaks highly both of Mr. Kennedy and also of Mr. Spicer, the second assistant gardener. Mr. A. T. Jaffrey, the first assistant gardener, has had charge of the ipecacuanha propagation, which is all being carried on at Rungbee, and has been remarkably successful. The result of the experiments with ipecacuanha will be noticed in another report. The value of Mr. Gammie's services are too well known to Government to require any mention from me.

31. The usual tabular returns are appended.

MEMORANDUM on CHINCHONA PRUNING, by Mr. *James Gammie*, in executive charge of the Government Chinchona Plantations in British Sikkim.

WHEN quite young, chinchonas ought to be encouraged to run up into good single stems, by rubbing off any superfluous buds or shoots that may have a tendency to form independent leaders. Should, however, the original stem show signs of weakness or disease, and a strong shoot be springing from near the base of the plant, it is better to cut the former clean out and allow the latter to take its place. Afterwards, if the leader get checked, or broken by any means, and several shoots break away in a vertical direction, all must be shortened except the one most likely to form the best leader. For the first two or three years after planting, any further pruning weakens the plants, makes free access for light to the ground, and allows the weeds to spring up unchecked,—a very undesirable state of affairs. About the third or fourth year, it will be found that many of the lower branches begin to show signs of breaking down of themselves, and these may be cut for the sake of the bark without injuring the trees, but on no account should the strong healthy lateral branches be cut away. In a private communication from Dr. King, after visiting the Neilgherries, he informed me that the practice of cutting away the lateral branches had been found there to injure the trees considerably, and this also is my own experience both with chinchonas and other trees. Many people imagine that by cutting away the lower branches of a tree the top is assisted and forced into extra growth; but this is altogether a fallacy, for as leaves elaborate the sap for the production of wood, &c., it follows that the greater the exposure of foliage surface to the light the greater will be the growth produced. Again, many people treat a stunted plant by pruning away the lower branches, to, as they term it, encourage the top, and try by means of the knife to make it grow into a tall tree, while the roots or the ground they are in are at fault. It is a wise provision of nature that the tops of trees, in some measure, correspond with the roots; *i. e.*, if the surroundings are such that long and strong roots can be formed, a tall tree is the result; but if the roots can only travel a short way on account of rocks or other hindrances, a dwarf plant is the result; were it otherwise, the first heavy breeze would blow all those with short roots out of the ground. When a lateral branch, owing to some check on the growth above it, threatens to become a rival to the legitimate leader, it should be shortened to prevent it so doing, or sometimes shortening may be necessary to recover the balance of a tree where one side has been injured; but these are exceptional cases, and require to be treated exceptionally. After the first year the knife should only be used when absolutely necessary, and then as lightly as possible.

MEMORANDUM on CHINCHONA PRUNING by Mr. *A. T. Jaffrey*, First Assistant Gardener at Rungbe, Government Cinchona Plantation.

STARTING from the practical ground that chinchona is grown for profit, the point to be determined is, whether the chances of profit and success will be enhanced or decreased by pruning or non-pruning. There are few indications in nature to serve as a guide, if we except the failure of the lower branches in many cases. The necessity of pruning, however, in the case of chinchona is pretty clear, for there appears to be in all healthy-growing trees an invariable tendency to throw off all superfluous branches. This is usually

caused either by the wind or the weight of water on the foliage during the rains, indicating the unerring certainty that *C. succirubra* (especially) is a tree whose normal state is a straight, clear bole. Having ascertained the natural habit of the tree, the question at once arises how is this habit to be turned to the most profitable account and produce the greatest quantity of clean marketable bark? Will this be attained by opposing its natural habits, or encouraging them? Certainly not by the former; therefore, in order to encourage the trees to give as little trouble as possible, and at the same time attain the object for which they are grown, viz., the greatest amount of marketable bark, this end can only be gained by a careful consideration of the arrangement as to inter-distances between the trees, so that they stand as closely together as will permit of a sufficiency of *air* and *light* to each. In order to have clean bark, lateral branches should upon no consideration be allowed to remain; in fact, by proper attention in youth, a knife would seldom be required; pruning should be attended to with the finger and thumb whilst the lateral shoots are young. How long the pruning process should be continued would depend much upon the growth of the trees. They should at least be attended to till out of reach of the pruner. My reason for keeping the *bole* of the tree clean of laterals is that I get a cleaner quality of bark from the bole than I could get from branches, and also that the labour of barking is reduced to a minimum, and my hands would be clear of unmarketable rubbish; while at the same time with close planting I would have nearly double the number of trees to work upon. Trees have been left unpruned from a supposition that to reduce the branches would check the growth. Of this I have no proof after more than 30 years' study of all kinds of plants. I would not for a moment hesitate to prune a soft-wooded tree like C. *succirubra* in the spring of the year, so that I could get the wound nearly covered during the summer. The trees are grown for bark and not for timber, therefore flaws in wood is not a consideration. Positive that a marketable commodity is required, it can no more be produced profitably without pruning and close planting than a good clean plank of timber without knots and flaws can be obtained from a fir tree without the same process being attended to.

TABLE showing the Number and Distribution of CHINCHONA PLANTS in the Government Plantations at Darjeeling on the 1st April 1873.

Names of Species of Chinchona.	Number in Permanent Plantation.	Number of Stock Plants for Propagation.	Number of Seedlings or Rooted Cuttings in Nursery Beds for Permanent Plantations.	Number of Rooted Plants in Cutting Beds.	Total Number of Plants, Cuttings, and Seedlings.
C. Succirubra	1,833,000	None	220,000	197,000	2,250,000
C. Calisaya	172,500	10,000	80,000	220,000	482,500
C. Micrantha	29,667	None	16,000	4,000	49,667
C. Officinalis and Varieties	100,000	None	25,000	None	125,000
C. Pahudiana	5,092	None	None	None	5,092
C. Patayensis	None	16	None	None	16
TOTAL	2,140,259	10,016	341,000	421,000	2,912,275

Mongpoo, 1 April 1873.

J. Gammie,
Head Gardener, in charge Chinchona Plantations, Darjeeling.

TABLE showing the Growth of CHINCHONAS in the DARJEELING PLANTATIONS during the Six Months ending 31st March 1873.

NAMES.	Numbers.	Third Plantation (Rishap), Altitude 2,000 Feet.					Fourth Plantation (Runghu), Altitude 3,332 Feet.					Fifth Plantation (Runghu), Altitude 2,556 Feet.				
		Date of Planting.	Height in Inches on 1 January 1868.	Height on 1 October 1872.	Height on 1 April 1873.	Growth during the Six Months.	Date of Planting.	Height in Inches when Planted.	Height on 1 October 1872.	Height on 1 April 1873.	Growth during the Six Months.	Date of Planting.	Height in Inches when Planted.	Height on 1 October 1872.	Height on 1 April 1873.	Growth during the Six Months.
		1867:					1864:					1864:				
Succirubra -	1	29 March	29	245	252	7	29 July -	5	283	283	-	15 October -	6	323	325	2
Ditto - -	2	ditto -	30	228	236	8	ditto -	6	312	319	7	ditto -	10½	238	240	2
Ditto - -	3	ditto -	37	230	240	10	ditto -	7½	262	284	22	29 July -	5½	233	240	7
Ditto - -	4	ditto -	24	262	267	5	15 October -	10½	300	313	13	ditto -	3	227	228	1
Ditto - -	5	ditto -	37	255	258	3	29 July -	4¾	262	262	-	ditto -	5½	327	347	20
Ditto - -	6	ditto -	30	264	270	6	ditto -	4¼	201	204	3	ditto -	3	144	163	19
Ditto - -	7	ditto -	27	195	196	1	ditto -	3½	320	335	15	ditto -	4	351	370	19
Ditto - -	8	ditto -	30	226	226	-	ditto -	2	260	284	24	ditto -	4½	277	277	-
Ditto - -	9	ditto -	29	168	168	-	ditto -	3	254	278	24	ditto -	4	264	278	14
Ditto - -	10	ditto -	25	216	224	8	ditto -	3	162	177	15	ditto -	3	252	258	6
Micrantha -	1	16 March	17	186	186	-	15 October -	9	212	214	2	ditto -	5½	188	194	6
Ditto - -	2	ditto -	19	228	228	-	29 July -	6½	296	296	-	ditto -	6	182	186	4
Ditto - -	3	ditto -	44	221	221	-	ditto -	3	238	238	-	15 October -	6	286	288	2
Ditto - -	4	ditto -	46½	228	228	-	ditto -	2½	dead	-	-	29 July -	4½	150	170	20
Ditto - -	5	ditto -	45½	246	255	9	15 October -	3	248	252	4	15 October -	5½	271	288	17
Calisaya -	1	29 June -	25	245	258	13	29 June 1867	*15¼	144	153	9	1 Jan. 1868	2	155	157	2
Ditto - -	2	ditto -	16	248	254	6	ditto -	9¾	148	166	18	ditto -	3½	196	204	8
Ditto - -	3	ditto -	15	214	218	4	ditto -	12¼	160	160	-	ditto -	3¾	216	216	-
Ditto - -	4	ditto -	16	213	225	12	ditto -	10	153	163	10	ditto -	3¼	179	182	3
Ditto - -	5	ditto -	22	222	224	2	ditto -	11½	190	194	4	ditto -	1¾	203	207	4
Ditto - -	6	ditto -	24	242	249	7	ditto -	10½	149	165	16	ditto -	4¼	173	173	-
Ditto - -	7	ditto -	23	248	255	7	ditto -	10¼	159	176	17	ditto -	4	214	222	8
Ditto - -	8	ditto -	19	235	246	10	ditto -	15½	98	123	25	ditto -	2¾	217	230	13
Ditto - -	9	ditto -	21	213	213	-	ditto -	14½	148	158	10	ditto -	7	198	209	11
Ditto - -	10	ditto -	21	232	236	4	ditto -	16	183	186	3	ditto -	3½	128	135	7

* Height on 1st January 1868.

George Henderson, M.D,
Officiating Superintendent, Botanical Gardens, and in charge of Chinchona Cultivation in Bengal.

Enclosure 3, in No. 22.

From *A. O. Hume*, Esq., C.B., Secretary to the Government of India, to the Officiating Secretary to the Government of Bengal.

Sir, Simla, 21 June 1873.

I AM directed to acknowledge the receipt of your letter dated the 30th ultimo, forwarding a report by Dr. Henderson on the Chinchona plantations in British Sikkim for 1872-73, and in reply to say that the condition of the plantations appears from the report to be on the whole very satisfactory.

2. As regards the canker, the Government of India from the first received Mr. McIvor's prognostications of the speedy destruction of the plantations with great reservation, and have long since been satisfied that that gentleman's views on this subject were wholly erroneous.

3. Considering the extent of ground they cover, ground interspersed with massive agglomerations of rock, small swamps and perpendicular precipices, the somewhat patchy appearance of the plantations as a whole is nothing more than could have been expected; and as this militates solely against their appearance, and not perceptibly against their practical utility, it seems scarcely a matter for regret.

4. In respect to the extension of cultivation, while his Excellency the Governor General in Council concurs with his Honor the Lieutenant Governor that no attempts to plant out palpably unsuitable plots should be made, he yet thinks that the whole of the

suitable portions of the Rungbee reserve should, as contemplated by the late Lord Mayo, be gradually brought under chinchona.

5. The advantages, for manufacturing purposes, of concentrating production within an area having a radius of 10 or 12 miles can scarcely be over-rated; and looking to the luxuriance with which the chinchona grows in all *suitable* localities about Rungbee, and that enough suitable localities are believed to exist on the Rungbee reserve to supply hereafter the whole wants of India, his Excellency would, for the present at any rate, prefer to see the culture extended in this locality, and would hesitate to establish new plantations in other parts of the hills.

6. Independent of other considerations, it seems probable that with all means and appliances at hand, with a body of native labourers well trained to the work, and with the local experience as to soil, exposure, and situation already gained at Rungbee, 1,000 acres could be added to the plantations at the latter locality quite as cheaply as a new plantation of 200 acres could be created elsewhere.

7. With the 2,000 acres of successful plantations which the Government will have in this neighbourhood by the close of this year, and which signifies, if judiciously worked, a steady yearly supply after the fourth year from the present time of not less than 150,000 lbs. of dry bark, it is clear that the manufactory must be somewhere on this reserve (where, moreover, fuel, and, therefore, potash and water power exist in superabundance, and where spirit can be produced at an excessively low cost), and under these circumstances his Excellency, as already remarked, is decidedly of opinion that Government expenditure on chinchona cultivation should, at any rate for some time to come, be mainly restricted to the maintenance and extension of the plantations on the Rungbee reserve.

8. His Excellency quite concurs in the expediency of mapping and measuring the plantations if this can be done at a moderate outlay; but, as even according to Dr. Henderson's showing, it would not appear that any pressing necessity exists for this work, his Excellency would not be prepared to sanction any considerable expenditure for this purpose until at any rate the manufacture of quinine becomes an established fact. Neither would his Excellency desire *at present to see* increased expenditure on the maintenance of the plantation roads. His Excellency is informed that for all practical purposes, and for officers accustomed to ride in the hills, they fully meet the requirements of supervision, while the most distant portions can be reached on a good pony in less than two hours from the residence at Mongphoo of the officer who is in executive charge of them.

9. The Teesta road referred to by his Honor may possibly prove of general utility, and could, it is believed, be made with certain alterations, practicable for loaded mules and ponies at comparatively small cost; and his Excellency is glad to hear that the subject is receiving his Honor's consideration.

10. As regards all questions of planting, pruning, and the like, looking to the marked success that has, during the past two or three years, attended most of the operations undertaken, his Excellency concurs with his Honor in thinking that they may be safely left in the hands of Mr. Gammie, the officer in permanent executive charge, and the superintendent for the time being.

11. In regard to the quinologist, there is every reason to believe that a qualified officer will be sent out by the Secretary of State before the close of the present year. The subject, it is known, is engaging his Grace's earnest attention.

12. In conclusion, I am to remark that the time appears now to have come for obtaining an accurate estimate of the expenditure to be entailed, over and above that already sanctioned and necessary for the maintenance of existing plantations by future extensions.

13. It is believed that by the close of this present official year Government will have fully 2,000 acres of healthy plantations, which will have cost them in round numbers five and a half lakhs. His Excellency would be glad to learn what extra expenditure over and above what would be incurred if no extensions were to be made, will be entailed by extensions during the succeeding four years aggregating 2,000 more acres. His Excellency has been informed that this second 2,000 acres can now be planted out at a cost of less than one-tenth of that which the first 2,000 have entailed; but he is desirous of receiving an exact estimate, checked by the superintendent but prepared by Mr. Gammie, who would be primarily responsible for carrying on the work of extension.

14. It is believed that complete data now exist for framing such an estimate with a high degree of accuracy, and that data, though less perfect, also exist for supplying information on the following points:—

Including the outlay for rearing the plants, clearing the ground, planting out, and subsequent weedings, what will each 100 of these proposed additional 2,000 acres have cost by the time the trees are seven years old? And what amount of bark, both quill and stem, may each such plot be expected to yield (including all previous prunings) if then cut?

15. It

15. It might be advantageous if all these calculations were given for planting at six feet, four feet, and three feet of interspace; although, except on virgin and specially good soil, his Excellency is disposed to doubt the expediency of planting so closely as the latter dimension involves.

I have, &c.
(signed) *A. O. Hume.*

— No. 23. —

(No. 5—Agriculture.)

From the Government of India to the Secretary of State for India.

Simla, 14 July 1873.

We have the honour to acknowledge the receipt of your Grace's Despatch (Revenue), No. 11, dated 4th ultimo, informing us of the selection of Mr. C. H. Wood for the appointment of quinologist for the Chinchona plantations in British Sikkim.

2. We would request, with reference to paragraph 4 of your Grace's Despatch, that Mr. Wood may be instructed to bring out with him a powerful paper pulper, to be worked by water power, or some similar machine capable of reducing the fresh chinchona bark to a fine paste; and also a good still* for the manufacture of alcohol, which can be made very cheap on the spot.

3. Mr. Wood need not provide himself with either alcohol or ether, but he will require an ample stock of sulphuric acid. Sikkim abounds with wood fuel, and potash can, therefore, be made cheaply on the spot. We beg to add that there are no laboratory appliances available at the plantations, beyond certain locally got up and more or less temporary make-shifts, except a few copper percolators, boilers, and vessels made in the Calcutta Dockyard.

We have, &c.
(signed) *Northbrook*, &c.

— No. 24. —

(No. 10—Agriculture.)

From the Government of India to the Secretary of State for India.

Simla, 6 November 1873.

In continuation of our Despatch, No. 17, dated the 3rd October 1872, and with reference to the letter addressed to your Grace by the Government of Madras on the 10th ultimo, No. 34 (Miscellaneous), we have the honour to forward a copy of our reply† to the letter from the Government of Madras, No. 1054, dated 2nd October 1873, on the question as to the existence of canker in the chinchona plants originally sent from the Nilgiris as stock for the Sikkim plantation.

†No. 451, dated 28th October 1873.

2. Your Grace will observe that we have not thought it necessary to prolong the controversy, although at the same time we are not prepared to accept the conclusions arrived at by his Excellency the Governor of Madras in Council.

3. The correspondence will be published in the supplement to the "Gazette of India."

We have, &c.
(signed) *Northbrook*, &c.

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* The supply of a still was cancelled by Telegram, dated 27th August 1873.

Enclosure in No. 24.

From *C. J. Lyall*, Esq., Under Secretary to the Government of India, Department of Agriculture, Revenue, and Commerce, to the Acting Secretary to the Government of Madras, Revenue Department.

Simla, 28 October 1873.

I AM directed to acknowledge the receipt of your letter, No. 1054 (Miscellaneous), dated the 2nd instant, and enclosures, on the question as to the existence of canker in the chinchona plants originally sent from the Nilgiris as stock for the Sikkim plantations, and to state in reply that while the Governor General in Council considers it needless to prolong the controversy, he is not prepared to accept the conclusions arrived at by his Excellency the Governor of Madras in Council.

2. As requested, however, by the Government of Madras, the papers, together with this letter, will be published in the "Gazette of India."

— No. 25. —

(No. 23—Revenue.)

From the Secretary of State for India to the Government of India.

India Office, 16 December 1873.

1. TOGETHER with my Despatch to the Government of Madras, dated this day, No. 25,* on the subject of chinchona cultivation, I herewith transmit 20 copies of a letter from Mr. Howard, the quinine manufacturer, on the subject of the prompt supply of the chinchona febrifuge in a cheap form to the people of India.

* Not given.

2. I trust that there is every reason to expect satisfactory results from the efforts of Mr. Wood, the quinologist, recently arrived in India, and that eventually there will be abundant supplies of the febrifuge, in a sufficiently cheap form, derived from a manufactory at the Sikkim plantation.

3. But the complete attainment of this end will take time, and, in the meanwhile, unless the chinchona alkaloids can be supplied in a very much cheaper form than is represented by the market price of the sulphate of quinine, such emergencies as that caused by the recent outbreaks of fever in Burdwan cannot be met. Five years ago a Chinchona Commission was appointed to report upon the efficacy of chinchona alkaloids other than quinine, and the report of the medical men who composed it was practically unanimous. Chinchonidine, quinidine, and even chinchonine, were pronounced to have the same febrifuge qualities as quinine, yet the report has not been acted upon. From 1869 to 1873 your Government has indented for 11,392 lbs. of quinine, and, except in 1869, when the other alkaloids were sent out for experimental purposes, only 220 lbs. of chinchonidine and quinidine. The subject is one of very considerable importance, and I request that your Government will take the suggestions contained in Mr. Howard's letter into consideration, and furnish me with your views.

Enclosure in No. 25.

USE of CHINCHONA as a Febrifuge.

Sir, India Office, 17 October 1873.

I AM directed by the Secretary of State for India in Council to convey to you his best thanks for the valuable assistance you have frequently given, both by advice and by performing difficult and laborious analyses, in the promotion of chinchona cultivation in British India. The important and costly works you have published on the chinchona genus have been of essential use both to those who collected plants and seeds of various species in South America, and to the cultivators in India. Your analyses, and the valuable remarks with which they are illustrated, have furnished excellent guides to those who are in charge of the plantations; and the numerous occasions, during a course of years, on which you have given advice and assistance of various kinds, have furthered the

progress

progress of the undertaking very materially. His Grace desires me to assure you that the services which you have so zealously and constantly rendered are fully appreciated, and that your aid is considered by Her Majesty's Government to have furthered, in no small degree, the success of this undertaking, which will hereafter be most beneficial to the people of India.

With regard to the present supply of chinchona alkaloids for India, a question has been submitted for the consideration of the Secretary of State, with reference, on the one hand, to a sensible reduction of the cost of that supply, and, on the other, to increasing the value of the red bark species, by supplementing the quinine supplied to India with chin chonidine. I am to request that you will be so good as to furnish his Grace with your views on this point, and with any details that are likely to be useful in the consideration of the question.

I am, &c.

J. E. Howard, Esq. (signed) *C. R. Markham.*

Sir, Tottenham, 21 October 1873.

In reply to the communication received from you, dated the 17th instant, conveying to me the thanks of the Secretary of State for India in Council, I beg that, in the first place, you will transmit in return the expression of the lively satisfaction with which I receive the said acknowledgment. In the first place, I wish to assure Her Majesty's Government that I shall esteem it alike a duty and a pleasure to give, to the best of my ability, the assistance required on the present occasion.

I feel that I cannot do better than by prefacing my reply to the question now submitted to me, by a reference to the observations* of his Excellency the Duke of Argyll, on the Report of the Committee of Medical Officers appointed to examine the febrifuge properties of chinchona alkaloids other than quinine.

His Excellency the Secretary of State remarks that quinine, though one of the most indispensable medicines used in India, is also one of the most expensive, and that it is very desirable that the results of the above inquiries should bear fruit. "The chinchona "febrifuge alkaloids should now be made available in India to a much larger extent "than has hitherto been practicable, and thus save, to a considerable extent, the expense "of quinine."

The lapse of four years since the above recommendation was issued have only served to demonstrate its importance. The price of quinine has advanced, and also that of the most important barks from which it is extracted; and from the gradual exhaustion of the South American supply of these, coupled with the increasing demand for quinine, there is quite a possibility of a still higher point being reached.

Owing to the high price, the stocks appear to have been kept low, so that the outburst of the Burdwan fever came upon a medical staff unfurnished with the requisite supplies to meet the emergency.†

It is impossible to doubt that many lives might have been saved if the above recommendation had been acted on.

In the meantime the demand for chinchonine has so largely increased in all quarters of the world, that I do not suppose the present low price will be long maintained, and the limited amount of its production leaves abundant room for chinchonidine as *the* alkaloid suited to meet the need of the Government of India.

At home the increased confidence in chinchonidine, and its consequent use, is very marked, most especially and satisfactorily in our large hospitals; I am inclined to suppose that it is found in most cases not inferior to quinine, though it is probable the latter medicine is resorted to in the most serious and difficult cases. I have reason to believe, however, that there are instances in which the therapeutic action of chinchonidine is preferable to that of quinine.‡

There is great reason to suppose that it contributed to the cure of the Countess of Chinchon, as the Loxa barks abound in this alkaloid, and not, as has been erroneously stated, in chinchonine, and I see no reason why this particular medicine should not eventually be made to fulfil the benevolent desires of Her Majesty's Government, and so diffuse health and cure through the vast native population of India.

For the supply of the chinchonidine-producing material will shortly become, in a practical sense, unlimited, and this cannot be said of the other alkaloids, so that it would appear the price may always be kept at a reasonably low rate. A great quantity of bark is imported from South America, at prices scarcely remunerative, containing this alkaloid, and

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* Dated 4th March 1869. "Return" ordered to be printed 9th August 1870, page 269.

† *See* the "Calcutta Gazette" of 30th July 1873.

‡ In confirmation of this opinion I refer especially to the mature opinion of Dr. Bensley that chinchonidine has "secured for itself a position *perhaps the most exalted of all*" the alkaloids. *See* No. 507, 29th October 1868, "Properties of the Chinchona Alkaloids," Government of India, Home Department.

and all the red bark, the produce of *Chinchona succirubra*, may be ranked in the same class. I had hoped that by skilful management the tree might have been led to form quinine instead of chinchonidine, but this expectation does not seem likely to be realised. Nothing can be better for pharmaceutical purposes than the beautiful red bark, now sent home from Ceylon, to say nothing of other sources of supply, but even in the skilful hands of Mr. McIvor the renewed red bark, such as I now have before me, is not cured of the above tendency. Mr. McIvor informs me that he hopes to send home bark of this description containing 3 per cent. of sulphate of quinine and 2 per cent. of sulphate of chinchonidine. I think it is much more probable that the proportions will be reversed.

In an account which I have just received of the cultivation in Java, I find, from the analysis of M. Moens, that the proportion there of chinchonidine to quinine in the red bark is as 6·36 per cent. of chinchonidine to about 2 per cent. of other alkaloid.

It follows, as a matter of course, that it is a point of immense importance to the success of the chinchona plantations in India, that Her Majesty's Government should follow up those steps which have been so judiciously taken, by encouraging the consumption of the sulphate of chinchonidine. This is needed especially to give the native practitioners confidence in the medicine, which cannot be said as yet to be introduced into India.

It is, perhaps, not too much to say that such a measure might increase the value of those plantations, which consists exclusively of red bark, to a degree varying from 10 to 50 per cent., according to circumstances.

I am afraid, considering the quality of some of the bark sent over, that the higher proportion would be attained only by those who have attended to the directions given as to the height above the sea level (and so forth) of their plantations. I wish that the cultivators could be induced to replace a portion of the red bark trees they are now cutting down with the sort of *Calisaya* which is giving such splended results in the island of Java. This would, at all events, increase their chances of success, and at the same time augment the supply of quinine-producing bark for the future.

I will now endeavour to answer the question as to supplementing the quinine supply to India by chinchonidine. I am glad that rather *supplementing* than *superseding* is looked to, as I believe that it requires time before the medical practitioner would willingly consent to be deprived altogether of quinine. I should certainly recommend, however, that in supplementing the supply, chinchonidine should be largely resorted to. I suppose that sulphate of chinchonidine could be obtained by public tender at about one-third the price of sulphate of quinine at the present moment, but a sudden and new demand might at once increase the price to some small extent, though not permenently.

I see by the "Times" of this morning that the Burdwan fever has again broken out, and I shall therefore have to consider the question of the possibility of a very large demand occurring under similar circumstances. I do not suppose that this could be at once supplied, but that it would require time and due notice to the manufacturers. The apparatus used is always costly, and the staff highly paid, and I should not like to find the Government placed in any difficulty as to the supply owing to the unwillingness of the quinine manufacturers to turn their trade into another channel. This is supposing that the quantity demanded should be so large as to require the extraction of the chinchonidine from bark bought for the purpose. All this *could* and *would* be done, but it cannot all be effected in a day.

I understand that Her Majesty's Indian Government desire that every native druggist's shop in India should be supplied with this febrifuge remedy at the price of one rupee per ounce, and that thus fever should be comparatively banished from the land.

It is a magnificent conception, and I see no reason why it should not eventually be realised, I do not say by quinine, but by the cheaper alkaloids. I do not recommend Her Majesty's Government to purchase quinidine, because the supply is so limited that the price already approximates to quinine. I have no objection to recommend chinchonine, but it will not so much benefit the Indian plantations; but I do recommend the sulphate of chinchonidine as the very best means within my knowledge of carrying out the benevolent intentions of Her Majesty's Government.

There is, as I have intimated, so very large a supply of the material from which this particular alkaloid is obtained, that it would be impossible for the manufacturers eventually to keep up the sulphate of chinchonidine beyond a moderate price. At present the barks from South America, rich in this product, come in at so low a price that from some particular parcels it is possible the medicine might be procured even at the very figure above indicated.

In conclusion, I may say that I am deeply impressed with the importance of the subject now under the consideration of Her Majesty's Indian Government. It is, I believe, the one thing needed to place the chinchona plantations on the vantage ground of certain and ascertained success. It exactly meets and removes the difficulty which I pointed out on the occasion of the first analysis of the Indian *Chinchona succirubra*. It will, moreover, be of signal advantage on the score of economy if only the present amount of febrifuge alkaloid is required; or if considerations of the public good should prevail to enlarge the supply, it would extend the benefit to three times the number of individuals;

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it would, moreover, be the means of commending to the whole world a medicine which needs only to be known to be preferred even to quinine in certain cases. It should not be forced upon the medical practitioners, but introduced gradually and with discretion.

I think that the present is a very favourable time for the Government, if they resolve upon the matter, to issue tenders for the first supply.

I have, &c.
(signed) *John Eliot Howard.*

Clements R. Markham, Esq.,
C.B., F.R.S., &c.

STATEMENT showing Quantities of QUINÆ, SULPHAS CHINCHONINE, CHINCHONIDINE, and QUINIDINE supplied to India from 1867 to 1873, and Price for the same.

	Quantity.	Price.
BENGAL.		
1867:	Lbs.	£. s. d.
Quinæ, Sulphas - -	1,083	- 4 - per oz.
1868:		
Quinæ, Sulphas - -	500	- 3 11 „
Ditto - - - -	1,617	3 10 8 per lb.
1869:		
Chinchonine, Sulphas -	150	- 12 - „
Chinchonidine „ - -	150	2 8 - „
Quinidine „ - -	150	2 8 - „
Quinæ, Sulphas - -	1,000	4 4 - „
Ditto - - - -	1,068	4 3 6 „
Chinchonine, Sulphate of -	350	- 9 6 „
Chinchonidine „ -	350	2 10 - „
Quinidine „ -	350	2 10 - „
1870:		
Quinæ, Sulphas - -	1,160	4 19 8 „
Ditto - - - -	1,200	5 3 4 „
Quinæ, Sulphas - -	1,100	4 2 9 „
1871:		
Quinæ, Sulphas - {850 / 846}	1,696	5 5 10 „ and 5 5 2 „
Chinchonidine, Sulphas -	220	2 - - „
Quinidine - - - -	160	2 14 - „
1872:		
Quinæ, Sulphas - -	500	6 - - „
Quinine „ - - -	500	5 10 2 „
Quinæ „ - - -	760	4 18 8 „
Quinine, Neutral, Sulphate of	60	4 6 - „
Quinæ, Sulphas - -	950	4 18 8 „
Quinine, Neutral, Sulphate of	40	4 6 - „
1873:	Lbs. oz.	
Quinine, Sulphate of -	60 10	- 7 10 per oz.
Quinæ, Sulphas - -	2,546	6 16 - per lb.
BOMBAY.		
1867:		
Quinæ, Sulphas - -	500	- 4 2 per oz.
Quinæ „ - - -	200	- 4 6 „
1868:		
Quinæ, Sulphas - -	760	4 1 4 per lb
1869:		
Quinæ, Sulphas - -	750	4 3 - „

	Quantity.	Price.
BOMBAY—*continued.*		
1870:	Lbs.	£. s. d.
Quinæ, Sulphas - -	700	4 17 6 per lb.
Ditto - - - -	810	4 13 9 „
1871:		
Chinchonine - - -	3	1 4 - „
Quinæ, Sulphas - -	400	5 18 6 „
1872:		
Quinæ, Sulphas - -	722	5 12 -
MADRAS.		
1867:		
Quinæ, Sulphas - -	200	- 4 3 per oz.
Quinæ - - - -	67	- 4 - „
Quinæ, Sulphas - - -	461	- 4 - „
1868:		
Quinidine, Sulphate of -	133	- 5 - „
Chinchonidine „ -	133	- 5 - „
Chinchonine „ -	133	- 1 6 „
Quinæ, Sulphas - -	645	3 18 8 per lb.
1869:		
Quinæ, Sulphas - -	150	4 4 - „
Quinidine, Sulphate of -	150	2 4 - „
Chinchonine „ - -	61	- 10 - „
Quinæ, Sulphas - - -	200	4 10 8 „
1870:		
Quinæ, Sulphas - -	130	5 6 8 „
Chinchonine, Sulphate of -	149	- 12 - „
Chinchonidine „ -	208	2 - - „
Quinidine „ -	195	2 8 - „
1871:		
Quinæ, Sulphas - -	360	5 6 6 „
Chinchonine, Sulphate of -	20	1 - 6 „
Quinæ, Sulphas, bleached -	15	- 8 3 per oz.
Ditto - ditto, unbleached	25	- 7 3 „
1872–73:		
Quinæ, Sulphas - -	300	5 - - per lb.
	Lbs. oz.	
Quinæ „ - - -	183 6	6 16 - „
Chinchonine, Sulphate of -	48 8	Not yet ordered.
Chinchonidine „ -	10 9	
Quinidine „ -	71 14	

— No. 26. —

TELEGRAM from Secretary of State to Viceroy of India, 25 February 1874.

SHALL 3,000 lbs. of chinchonidine be ordered from Messrs. Howard?

— No. 27. —

TELEGRAM from Viceroy to Secretary of State for India, 17 April 1874.

AT what price can 3,000 lbs. of chinchonidine be had from Messrs. Howard?

— No. 28. —

TELEGRAM from Secretary of State to Viceroy of India, 17 April 1874.

CHINCHONIDINE. Messrs. Howard would supply 3,000 lbs. at 45 *s.* a pound.

— No. 29. —

TELEGRAM from Viceroy to Secretary of State for India, 22 April 1874.

PRICE too high; will take only 100 lbs. experimentally.

— No. 30. —

(No. 33—Revenue.)

From the Secretary of State for India to the Government of India.

India Office, 4 June 1874.

1. ON the 25th of last February, I caused a telegram to be despatched to your Excellency, to the effect that if large supplies of febrifuge medicine of cheaper kinds were required this year they must be ordered at once, and that Messrs. Howard could furnish 3,000 lbs. of chinchonidine in six months at 45 *s.* the pound. In your reply, dated 22nd April, you stated that the quoted price of chinchonidine was too high, but that you would take 100 lbs. experimentally.

2. Your Government will remember that the chinchonidine was experimentally tried seven years ago on a large scale in Bengal, Madras, and Bombay; that medical commissioners were appointed to investigate the question of its efficacy, and that their reports placed the medicine beyond the stage of experiment. Its value as a febrifuge was found to be equal to that of quinine. The 100 lbs. have been ordered for transmission to Calcutta, and I request that in case more is likely to be required I may receive an early intimation, as the manufacturers require timely warning in the event of being called upon to furnish a large supply. For the value of 2,546 lbs. of quinine, the amount of the indent for 1873, your Government can be supplied with 7,500 lbs. of sulphate of chinchonidine.

3. Since the receipt of your last telegram, it has been reported to me that Dr. de Vrij, the quinologist of the Hague, has discovered a means of purifying the refuse of the quinine manufactory, and separating the remaining febrifuge alkaloids in the form of a powder. This medicine has been found efficacious in Holland and England, and it can be supplied at 12 *s.* a pound; but it is not certain

certain whether it would be equally efficacious in the treatment of the more virulent fevers of India. If so, the discovery is very important. I have ordered 100 lbs. of this preparation also, which will be sent to Calcutta, and I shall be glad to receive a report upon its efficacy as a febrifuge.

I have, &c.
(signed) *Argyll.*

— No. 31. —

(No. 53—Public.)

From the Government of India to the Secretary of State for India.

Fort William, 25 August 1874.

ADVERTING to your Despatch in the Revenue Department, No. 33, dated the 4th June last, we have the honour to state that, as upwards of 1,600 lbs. of chinchonidine have already been indented for, besides other chinchona alkaloids, a further supply of that drug is not necessary at present.

2. A report will be furnished on Dr. de Vrij's preparation as soon as its value as a febrifuge has been properly tested.

We have, &c.
(signed) *B. H. Ellis, &c.*

— No. 32. —

(No. 51—Revenue.)

From the Secretary of State for India to the Government of India.

London, 24 September 1874.

1. WITH reference to the manufacture of chinchona alkaloids from barks grown in British Sikkim, which is now being conducted by Mr. Wood, your Excellency's Government are aware, from copies of reports of analyses previously transmitted, that careful investigations into the chemical constituents and structure of the Sikkim barks have also been made by eminent chemists in Europe. Their work cannot fail to be of assistance to Mr. Wood in the progress of his labours, by affording suggestions and confirmations of his results.

3. A new alkaloid, named quinamine by Dr. Hessé, has been discovered in the bark grown in Sikkim; and in order that the investigations with respect to it may be continued, I request that a small supply of the combined alkaloids from red bark extracted by Mr. Wood may be forwarded to this office as soon as possible.

(signed) *Salisbury.*

— No. 33. —

(No. 53—Agriculture.)

From the Government of India to the Secretary of State for India.

Calcutta, 1 September 1874.

IN continuation of our Despatch, dated the 7th July 1873, No. 4, we have the honour to forward, with our orders* thereon, a letter from the Government of Bengal, No. 2394, dated the 20th ultimo, submitting a report by Dr. King on the chinchona plantations in British Sikkim for the year ending the 31st March last.

* No. 2444, dated 28 August 1874.

We have, &c.
(signed) *Northbrook, &c.*

Enclosure 1, in No. 33.

From the Assistant Secretary to the Government of Bengal to the Secretary to the Government of India.

Calcutta, 20 August 1874.

I AM directed to submit to the Government of India, in the Department of Agriculture, Revenue, and Commerce, the accompanying letter, No. 60C, dated the 8th June, from Dr. King, in charge of Chinchona Cultivation in Bengal, with enclosure, being the (Twelfth) Annual Report on the Government Plantations in British Sikkim for the year ending 31st March last.

2. In laying this report before the Governor General in Council, I am to express the satisfaction of the Lieutenant Governor at the degree of success which has marked the operations of the year. The plantations have arrived at a stage which permits us no longer to characterise them as experimental, but indicates plainly that the care and expenditure which have been bestowed upon them for so many years will have a practical result. The *canker*, concerning which fears were expressed before the Chinchona Commission in 1871, has proved to be simply one of those casual dangers to which young plantations are exposed; while we have at last learned to recognise the precise conditions of soil, &c. under which the tree thrives. The uneven quality of the hill-soils is now well understood; and, instead of attempting to remedy the patchy appearance of the plantations, hitherto regarded as an evil, only such spots are now selected for planting as are marked by the known conditions of success. In the language of Dr. King, "The newer plantations, therefore, are patchy from the beginning, and are so of choice." The Lieutenant Governor does not understand that the intention has been abandoned of filling up the numerous blanks in the plantations where single trees have been damaged or choked by grass, but that no attempt will be made to replant spots where the trees have died out from the unsuitability of the soil.

3. The hope expressed in the last report, that Mr. Gammie would be able to increase the area under cultivation to nearly 2,000 acres during the year under notice, the Lieutenant Governor observes, has been more than realised; and "Government now possess in Sikkim about 2,000 acres under quinine-producing chinchonas," 247,000 trees of the *Succirubra* variety and 122,000 of the *Calisaya* having been planted during the period. This success has been achieved in spite of the early termination of the rains, which brought planting operations to a premature close, and indicates much earnestness and activity on the part of Dr. King's staff.

4. About three and a quarter millions of trees are now planted out, consisting mainly of the two great varieties—

Chinchona Succirubra - - - - - - -	2,550,000
Chinchona Calisaya - - - - - - - -	476,500

The Government of India will observe that, practically, the plantations are now confined to these two varieties, the former producing the *red*, and the latter the *yellow* bark of commerce. *C. Officinalis*, and the three or four other varieties of which the growth has been attempted, have practically been abandoned, the soil being found unfavourable to their growth. Dr. King notices, however, the existence on the plantations of a supposed "hybrid" chinchona, the bark of which, upon analysis, was found to be rich in quinine; and every effort is being made to propagate this variety, experience showing that it grows well in Sikkim, and at a higher level than the *Calisaya*. The discovery of this "hybrid," which Dr. King thinks may possibly prove to be not a hybrid at all, but a distinct species of chinchona, is an interesting fact of the report, and the Lieutenant Governor is glad to observe that, in addition to 6,000 plants of this variety in permanent cultivation, there are 34,000 cuttings and seedlings in the gardens.

5. The earnestness with which Mr. Howard, in the correspondence of October last, lately forwarded to this Government by the Government of India, urges upon Her Majesty's Secretary of State that the Indian *C. Succirubra* belongs to the cinchonidine rather than the quinine-producing varieties of the tree, must invest the discovery of any new variety producing quinine in quantity with great importance. It is satisfactory, however, to observe, in this connection, that Mr. Howard believes "the *sulphate of cinchonidine* to be the very best means" the Government possesses in these plantations of bringing the medicine in a completely effectual form within the means of the people.

His Honor observes that Dr. King's attention appears hardly as yet to have been directed to the value of this more common alkaloid; and that he urges an alternative preparation of bark, in use on some of the plantations amongst the coolies, as a means of bringing the specific within the reach of the poorer classes. His remarks upon the matter are so important, that the Lieutenant Governor would bring them to the special notice of the Governor General in Council. He says:—

"It is sometimes urged (especially in England) that chinchona-planting is being overdone, and that quinine is not an article for which the demand will increase simply because it may become cheap. This opinion is, I believe, held in entire ignorance of the fact that quinine, the only reliable remedy in the commonest of Indian diseases, is at present almost unobtainable

unobtainable by the mass of the population of India. The annual supply allowed to a charitable dispensary (and in most districts the dispensary is the only place where quinine can be had) is, as far as my experience goes, equal to the actual demand of only a few days in the year. This medicine is given at a dispensary only to what the official in charge considers 'bad cases;' others are put off with doses of chireyta, atees, or some other and inefficient substitute for quinine.

"The consumption of quinine in India is no index to the quantity that is required, but only to the quantity which can be afforded of so very costly a drug. But however much the chinchona alkaloids may be cheapened, they must (as involving a costly process of manufacture) always be comparatively high in price, and I think some of the inferior twig-bark, which will continue to be yielded on the plantations, might be advantageously utilised in making a strong decoction, or a liquor of bark. Such a preparation might be concentrated, so that half a teaspoonful or a teaspoonful would mixed in water form a dose. A preparation of this sort is in use in some plantations known to me, has been tried amongst the coolies in this plantation, and is reported an efficient medicine in convalescence from fever, and in the milder attacks even from the beginning."

Dr. King will be requested to be good enough to submit a further report upon this suggestion, after communication with Mr. Wood, the Quinologist, and upon a review of Mr. Howard's letter, referred to above.

6. The arrival of Mr. Wood on the Sikkim plantations will now place them on a footing of equality with those on the Nilgiris, which have for so many years had the advantage of a resident chemist, who, by careful and repeated analysis of the bark, has been able to give a more scientific culture to the plantations than has hitherto been possible in Sikkim. The Lieutenant Governor regrets to observe that, owing to the delay in forwarding from home the apparatus and chemicals for the laboratory, Mr. Wood's operations have been greatly delayed.

7. In Mr. Secretary Hume's letter, No. 208, dated 21st June 1873, the Government of India has estimated that with 2,000 acres of successful planting, there will be a steady yearly supply of not less than 150,000 lbs. of dry bark available for the analyst from the end of 1877; but Dr. Henderson, who was in charge of the plantations during Dr. King's absence, estimates Mr. Wood's requirements at half-a-ton of bark per working day, or 336,000 lbs. a year, fully to utilise his services and appliances. The Lieutenant Governor observes from the present report that about 16,000 lbs. of dry bark were obtained during the last year from thinnings and prunings of the plantations, and that the yield will probably be 70,000 lbs. in the present season from the same operations. The yield of last season has thus fallen very far short of the estimate in the last annual report (50,000 lbs.). His Honor presumes that this is attributable to the fact that it is undesirable to accumulate stores of the bark in so damp a climate, but Dr. King's attention will be called to the matter. He will also be asked to state whether negotiations of any kind have been opened with the proprietors of the Pomung plantation for purchasing the bark of that estate, concerning which his Honor addressed the Government of India in letter No. 376, of 9th February last, from this department.

8. While on this point, I am directed to notice that this Government has not yet received any account sales of the 60 cases of bark shipped to London in 1872–73, nor of the final disposition of the 57 cases (containing 3,500 lbs.) in Calcutta at the date of last report; information on both points is much desired.

9. As this undertaking is now passing out of the purely experimental into the commercial stage, it becomes necessary that a set of account-books should be opened on the plantations, and an annual balance-sheet prepared, in which the expenditure and receipts, the cost of cultivation and manufacture, the produce, stock, and sales of the plantations, should be clearly recorded. The Lieutenant Governor would be glad to receive an expression of the views of the Governor General in Council as to the form in which the accounts should be started, as it may be expedient to open them with a debit balance of such proportion of their cost up to date as may be deemed proper. We have entered upon this experiment in the hope of being able to prepare this medicine so cheaply, as to place it ultimately within reach of the poor; and it is desirable to mark the advances which are made towards the attainment of this purpose, by the keeping of systematic accounts.

10. The Lieutenant Governor remarks that Dr. King appears to have overlooked the call made by this Government upon his predecessor in No. 1899, dated 22nd July 1873, for a statement of the cost at which "the mapping and measurement of the plantations could be effected," and the estimate will be again called for.

11. His Honor would have been glad if the report had confirmed the hope raised by Dr. Henderson that "seedlings self-sown" were becoming common on the plantations and in the neighbourhood. Dr. King will be asked to notice the point in his next report, which the Lieutenant Governor also hopes will contain some information concerning the prosecution of experiments with *manure* under Mr. Wood's direction.

12. I am to add that Sir Richard Temple is greatly obliged to Dr. King for his interesting report, and trusts that the Governor General in Council will be satisfied with the energy which has marked all the operations of the year on the part of Dr. King, Dr. Henderson (who acted for him in his absence), and the staff.

Enclosure 2, in No. 33.

From Superintendent, Botanical Garden, Calcutta, and in charge of Chinchona Cultivation in Bengal, to the Secretary to the Government of Bengal, dated Mungpoo, near Darjeeling, the 8th June 1874.

I HAVE the honour herewith to submit the Annual Report on the Government Chinchona Plantations, British Sikkim, for the year ending 31st March 1874.

TWELFTH ANNUAL REPORT on the Government Chinchona Plantations in British Sikkim, by *George King*, Esq., M.B., F.L.S., Superintendent, Royal Botanical Garden, Calcutta, and in charge of Chinchona Cultivation in Bengal.

1. *Condition of the Plantation.*—This is, on the whole, very satisfactory. The disease, concerning which such fears were expressed in some of the evidence given before the Chinchona Commission in 1871, is found, as I anticipated, to be comparatively harmless. Here and there, even in fair soil, a tree is attacked by it, but on cutting down the diseased stem healthy shoots are found to spring readily from the stump. I think this disease may, therefore, be classed with the minor dangers to which all plantations of young trees are more or less exposed. The older trees continue to grow satisfactorily, and some parts of the newer planting, in the richer soil and drier climate of the lower end of the Rungjo Valley, are about as fine as could be desired. The general appearance of the plantation is no doubt patchy, and will remain so. As explained in previous reports, the soil of the Sikkim hills is most uneven in quality. Chinchona cannot be induced to grow in spots which do not exactly suit it. We have now learned to recognise the kind of places where it is likely to do well, and in making extensions only such spots are selected. The newer parts of the plantation are therefore patchy, from the beginning, and are so of choice.

2. *Species in Cultivation.*—The plantations practically consist of trees of the two species, yielding, respectively, red and yellow bark (*Cinchona Succirubra* and *C. Calisaya*), in the proportion of about two millions of the former to three hundred thousand of the latter. The cultivation of the species yielding crown-bark (*Cinchona officinalis*) has been abandoned because it does not thrive in the climate of Sikkim, while the cultivation of the species yielding the grey barks of commerce has been given up because grey barks are so poor in quinine. *Cinchona Pitayensis*, of which a few plants were received from the India Office about three years ago, will apparently not thrive in Sikkim; but this is of the less moment as Pitayo bark is, I am informed, of little value compared to yellow (*Calisaya*) bark. The great preponderance of *Succirubra* trees in the plantation is not due to a preference for that species over *Calisaya*, but to the fact that the red-bark tree is hardier, much more easily propagated, and has a much wider range as regards condition of growth than *Calisaya*. Artificial propagation of *Calisaya* by cuttings proved very much more difficult than similar propagation of *Succirubra*, and until two years ago (owing to the slowness of the *Calisaya* trees to yield seed), we had to depend entirely on such means for multiplying it, whereas *Succirubra* has been seeding freely for years. At last, however, we have raised a large supply of *Calisaya* seed, and I trust, before many months are over, to be able to report half-a-million of plants in the nursery-beds, and, if the funds at my disposal be sufficient, a large proportion of these may be permanently planted out before the end of the current financial year. Red bark, although rich in its total yield of alkaloids, contains less quinine than yellow bark, and in a less easily extracted form. It is therefore less esteemed by manufacturers of quinine. Moreover, red bark can still be procured in considerable quantity from South America, while yellow bark, on the contrary, is scarce. The yellow-bark tree promises to grow well in Sikkim, and now that Government have the means of extending its cultivation, I am strongly of opinion that they should do so. There is another species in cultivation in the plantation, which in some former reports was referred to as "the hybrid." The first plant of this appeared amongst a set of seedlings raised from seed got some years ago from Dr. Thwaites, F.R.S., Director of the Royal Botanical Garden, Ceylon, a gentleman to whom we owe supplies of many other valuable seeds and plants. It is possible that this may turn out to be a distinct species, and not a hybrid. Analysis of its bark shows it to contain much quinine. Since the discovery of this fact every effort has been made to propagate this variety. Experience, moreover, proves that it grows well in Sikkim, and at a higher level than *Calisaya*. Of this variety about 6,000 plants are in permanent cultivation, and I hope before another year to add largely to this number. A form similar to this sprung up accidentally in some of the Nilgiri plantations, and for a packet of seed of the Nilgiri variety I have to thank Mr. McIvor.

3. *Summary of the Year's Work.*—During the past year, 247,000 red bark (*Succirubra*) trees, 122,000 yellow bark (*Calisaya*), and 6,000 of the "hybrid," have been planted out. These figures would have been higher but for the sudden and early termination of the rains, which brought planting operations to a premature close. As will be seen by the appended returns, the stock of seedlings in nursery-beds has been kept up to the usual extent. The annual repairs have been given to the plantation roads and bridges, and

and the necessary alterations have been made in fitting the existing buildings at Rungbee for the use of the recently appointed Quinologist.

4. *Manure.*—A limited number of plants were treated with Compton's patent manure, the effect of which in stimulating growth was vigorous but evanescent. About seven hundred plants were liberally manured with cowdung. Hitherto no difference in growth has been perceptible in these plants; but, as was the case in the Nilgiri plantation, the quality of the bark may have been improved. Samples of the bark will therefore be made over to the Quinologist for report. Supplies of guano, ammonio-sulphate, and castor-oil cake have been got, and it is intended to apply these to a select number of plants at the beginning of the ensuing rainy season.

5. *Appointment of a Quinologist.*—Mr. C. H. Wood, the gentleman sent out by Her Majesty's Secretary of State for India as Quinologist for these plantations, arrived in October, and located himself at Rungbee. There was considerable delay in the forwarding of Mr. Wood's apparatus and chemicals; indeed, some of the former has not yet reached him, and Mr. Wood's operations have consequently been greatly delayed. In order to avoid expense, as far as possible, no new buildings have been erected for Mr. Wood, and but a comparatively small sum (about 1,500 rupees) has been spent in adapting those at Rungbee for his purposes. Mr. Wood occupies, as a dwelling-house, the bungalow first built at Rungbee, while the more recently erected inspection bungalow there has been fitted up as his laboratory. By Mr. Wood's appointment, the Sikkim plantations will be on a footing of equality with those on the Nilgiris, which have for so many years had the advantage of a resident chemist, who, by careful and repeated analysis of their produce, has been able to give a scientific direction to chinchona cultivation.

6. *Yield of Bark.*—No trees have been cut for the sake of their bark; but in a few places, where the trees stood too closely together, some thinning and pruning has been done. These operations have yielded about 16,000 pounds of dry bark, part of which has been made over to the Quinologist. The remainder has been stored until he can use it. There are also in store about 16,000 pounds of dry bark, got from last year's thinning and pruning. At the end of the ensuing rainy season, a good deal more pruning and thinning will have to be undertaken in the interest of the older trees, and this will probably yield about 70,000 pounds more of dry bark. During the year no bark has been sent to England for sale, but 2,000 pounds have been supplied to the Presidency Medical Depôt.

7. *Expenditure and Revenue.*—The budget allotment for the past year was 55,618 rupees, while the expenditure, exclusive of Mr. Wood's pay, but inclusive of the expenditure on his factory, amounted to only 50,471 rupees. There is thus a saving of 5,147 rupees. Mr. Wood has now got a separate budget allotment, and draws his own bills, and henceforth the plantation and quinology accounts will be distinct. The sum of 1,613 rupees, received for the sale of bark to the medical depôt, was entered as a paper credit in favour of the plantation, and *Rs.* 725. 12., being land-rent collected in cash from the settlers within the chinchona reserve, were paid into the Government Treasury at Darjeeling.

8. *General Considerations.*—Government now possesses in Sikkim about 2,000 acres under quinine-producing chinchonas. It is sometimes urged (especially in England) that chinchona-planting is being overdone, and that quinine is not an article for which the demand will increase simply because it may become cheap. This opinion is, I believe, held in entire ignorance of the fact that quinine, the only reliable remedy in the commonest of Indian diseases, is at present almost unobtainable by the mass of the population of India. The annual supply allowed to a charitable dispensary (and in most districts the dispensary is the only place where quinine can be had) is, as far as my experience goes, equal to the actual demand of only a few days in the year. This medicine is given at a dispensary only to what the official in charge considers "bad cases;" others are put off with doses of chireyta, atees, or some other and inefficient substitute for quinine. The present consumption of quinine in India is no index to the quantity that is required, but only to the quantity which can be afforded of so very costly a drug. But however much the chinchona alkaloids may be cheapened, they must (as involving a costly process of manufacture) always be comparatively high in price, and I think some of the inferior twig-bark, which will continue to be yielded on the plantations, might be advantageously utilised in making a strong decoction or a liquor of bark. Such a preparation might be concentrated, so that half a teaspoonful or a teaspoonful would, mixed in water, form a dose. A preparation of this sort is in use in some plantations known to me, has been tried amongst the coolies in this plantation, and is reported an efficient medicine in convalescence from fever, and in the milder attacks even from the beginning.

9. In conclusion, my best thanks are due to Mr. Gammie, the resident executive officer in charge of these plantations, and to Messrs. Jaffray and Kennedy, for the excellent way in which they have performed their duties. Mr. Biermann, one of the plantation staff, still remains in Europe on sick-leave, on account of fever caught in the discharge of his duty in the Rishap Valley.

I returned from sick furlough to England on 5th November, and received charge of the office from Dr. G. Henderson, who officiated for me during my absence.

10. The usual returns are annexed.

TABLE showing the Number and Distribution of CHINCHONA PLANTS in the Government Plantations at *Darjeeling*, on the 1st April 1874.

Names of Species of Chinchona.	Number in Permanent Plantation.	Number of Stock Plants for Propagation.	Number of Seedlings or Rooted Cuttings in Nursery Beds for Permanent Plantations.	Number of Rooted Plants in Cutting Beds.	Total Number of Plants, Cuttings, and Seedlings.
C. Succirubra	2,080,000	None	175,000	300,000	2,555,000
C. Calisaya	294,500	2,000	60,000	120,000	476,500
C. Micrantha	45,667	None	4,000	None	49,667
C. Officinalis and Varieties	125,000	-	None	-	125,000
C. Pahudiana	5,092	-	-	-	5,092
C. Pitayensis	None	16	-	-	16
C. New variety	6,000	1,000	17,000	16,000	40,000
TOTAL	2,556,259	3,016	256,000	436,000	3,251,275

TABLE showing the Growth of CHINCHONAS in the DARJEELING PLANTATIONS during the Six Months ending 31st March 1874.

NAMES.	Numbers.	Third Plantation (Rishap), Altitude 2,000 Feet.				Fourth Plantation (Rungbee), Altitude 3,332 Feet.				Fifth Plantation (Rungbee), Altitude 2,556 Feet.			
		Date of Planting, 1867.	Height in Inches on 1st January 1868.	Height on 1st October 1873.	Height on 1st April 1874.	Growth during Six Months.	Date of Planting, 1864.	Height in Inches when planted.	Height on 1st October 1873.	Height on 1st April 1874.	Growth during Six Months.	Date of Planting, 1864.	Height in Inches when Planted.	Height on 1st October 1873.	Height on 1st April 1874.	Growth during Six Months.
C. Succirubra	1	29 March	29	259	259	-	29 July	5	310	315	5	15 October	6	328	330	2
Ditto	2	- ditto	30	258	270	12	- ditto	6	341	358	17	- ditto	10½	244	244	-
Ditto	3	- ditto	37	253	257	4	- ditto	7½	284	286	2	29 July	5½	252	259	7
Ditto	4	- ditto	24	269	278	9	15 October	10½	336	336	-	- ditto	3	228	233	5
Ditto	5	- ditto	37	270	280	10	29 July	4¾	282	292	10	- ditto	5½	372	372	-
Ditto	6	- ditto	30	280	289	9	- ditto	4½	246	270	24	- ditto	3	192	202	10
Ditto	7	- ditto	27	196	210	14	- ditto	3½	366	384	18	- ditto	4	383	386	3
Ditto	8	- ditto	30	226	250	24	- ditto	2	314	314	-	- ditto	4½	290	290	-
Ditto	9	- ditto	29	176	176	-	- ditto	3	300	312	12	- ditto	4	284	289	5
Ditto	10	- ditto	25	239	239	-	- ditto	3	197	232	35	- ditto	3	267	274	7
C. Micrantha	1	1 March	17	188	199	11	15 October	9	266	266	-	29 July	5½	211	219	8
Ditto	2	- ditto	19	242	252	10	29 July	6½	336	346	10	- ditto	6	199	200	1
Ditto	3	- ditto	44	233	235	2	- ditto	3	248	255	7	15 October	6	307	315	8
Ditto	4	- ditto	46½	230	230	-	- ditto	2½	-	158	-	29 July	4½	210	228	18
Ditto	5	- ditto	45½	275	288	13	15 October	3	273	281	8	15 October	5½	298	312	14
C. Calisaya	1	29 June	25	265	276	11	29 June 1867	15½	154	164	10	1 Jan. 1868	2	171	179	8
Ditto	2	- ditto	16	286	302	16	- ditto	9¾	166	166	-	- ditto	3½	228	237	9
Ditto	3	- ditto	15	234	235	1	- ditto	12½	176	183	7	- ditto	3¾	216	224	8
Ditto	4	- ditto	16	234	242	8	- ditto	10	174	192	18	- ditto	3¾	182	183	1
Ditto	5	- ditto	22	240	252	12	- ditto	11½	222	229	7	- ditto	1¾	222	225	3
Ditto	6	- ditto	24	265	283	18	- ditto	10½	165	165	-	- ditto	4¼	175	182	7
Ditto	7	- ditto	23	272	280	8	- ditto	10½	192	199	7	- ditto	4	226	226	-
Ditto	8	- ditto	19	255	257	2	- ditto	15¼	141	150	9	- ditto	2¾	265	268	3
Ditto	9	- ditto	21	213	213	-	- ditto	14½	177	177	-	- ditto	7	214	221	7
Ditto	10	- ditto	21	252	266	14	- ditto	16	210	218	8	- ditto	3½	135	144	9

Enclosure 3, in No. 33.

From Deputy Secretary to the Government of India to the Secretary to the Government of Bengal.

Calcutta, 28 August 1874.

In reply to your letter, No. 2,394, dated the 20th instant, submitting the report on the Government chinchona plantations in British Sikkim for the year ending the 31st March last, I am directed to express the satisfaction of the Government of India at the progress made during the year under review.

2. As to the proposed accounts, they should be of the simplest kind compatible with accuracy, but on this point the Lieutenant Governor may introduce such forms as he may consider desirable. The amount to be debited against the 2,000 acres at present under cultivation should depend on the expense which will be incurred in planting out an additional area of like extent, as thus the sums wasted through ignorance, or spent in gaining experience, which belong to the experimental and not the quasi-commercial operations, will be eliminated.

3. The thanks of the Government of India are due to Dr. King, and also to Mr. Gammie, the executive head of the gardens, to whom (without overlooking the superior services of Dr. Anderson, Mr. C. B. Clarke, Dr. Henderson, and Dr. King, as directing and controlling authorities), Government is primarily indebted for the practical success of these plantations.

— No. 34. —

(No. 54—Revenue.)

From the Secretary of State for India to the Government of India.

India Office, London, 5 November 1874.

Para. 1. I have received and considered in Council the Report of the Chinchona Plantations in British Sikkim for the year ending 31st March 1874, forwarded with your Excellency's Despatch, dated 1st September (No. 53) 1874.

2. The progress of the plantations continues to be very satisfactory, and as there are now upwards of three million trees growing over a cultivated area of 2,000 acres, besides private plantations, the cultivation of these South American inter-tropical plants on Himalayan slopes beyond the tropics may now be considered to have passed the experimental stage, so far as healthy growth is concerned.

3. But the manufacturing experiment is equally important, and I look forward with interest to receiving the first report of the Quinologist, who is now established, with a suitable laboratory and supply of chemicals, at Rungbi. His efforts will mainly be directed to the discovery of the cheapest form of efficacious febrifuge; but his analysis will also be of great value, as a guide to the cultivator in selecting sites, in the use of manure, and in cropping and harvesting the bark.

4. It is suggested by Dr. King that decoctions of bark are very useful for administration to coolies on the plantations, not only in convalescence, but from the beginning of fever attacks, and the officers in charge of the plantations are right in their endeavours to prevent any portion of the bark harvests from being wasted. So much importance need not be attached to the cultivation of quinine-yielding species, if the species rich in chinchonidine is more suitable to the soil and climate of Sikkim, for the reports of the Chinchona Commissions are unanimous as to chinchonidine being equal to quinine as a febrifuge. If this view is confirmed by the medical officers whose duty it will be to watch and superintend the administration of the large quantity of chinchonidine which has lately been dispatched to India, this question may be considered to have been finally settled. The cheap form of the febrifuge manufactured at Rungbi will contain all the alkaloids formed in the bark, but as the *C. Succirubra* trees are by far the most numerous, chinchonidine must always predominate. Hence very considerable importance attaches to the results of the use of the latter alkaloid, 1,700 oz. of

which have now been dispatched to Calcutta. I therefore desire that full reports may be called for on the efficacy of this form of the chinchona febrifuge, the successful use of which in India will so much increase the value of the Sikkim plantations.

I have, &c.
(signed) *Salisbury.*

— No. 35. —

(No. 1—Agriculture.)

From the Government of India to the Secretary of State for India,

Calcutta, 1 January 1875.

WE have the honour to forward a Resolution by the Government of Bengal, dated the 15th ultimo, with copies of the reports therein referred to by Mr. Wood, the Government Quinologist at Rungbee, on the analysis of bark yielded by the Government Chinchona Plantations, and on the economical results to be obtained by Mr. Broughton's process for the extraction of chinchona alkaloids, together with copy of a letter we have addressed to that Government in reply.

2. With reference to paragraph 3 of the Resolution, we shall be glad if your Lordship will cause us to be furnished in the fullest detail with the information required as to the prices obtained in the home market by the sale of the different varieties of bark from time to time sent home for sale.

3. Detailed accounts of the sales of all the more recent consignments of bark from Madras would also be very acceptable if they can be furnished.

We have, &c.
(signed) *Northbrook, &c.*

Enclosure 1, in No. 35.

RESOLUTION of the Government of Bengal.

Calcutta, 15 December 1874.

MR. WOOD'S analyses confirm the fact that the *Succirubra* or red-bark species of chinchona, of which the plantations at Rungbee mainly consist, is greatly inferior to the *Calisaya* or yellow-bark variety in the quantity of quinine which it contains, while it presents, at the same time, peculiar obstacles to the extraction of the alkaloids therefrom. Dr. King therefore proposes that no more *C. Succirubra* should be planted out, except to fill death-vacancies in the existing plantations, and the Quinologist and the head-gardener (Mr. Gammie), with whom the Lieutenant Governor conferred on the subject during his late visit to the gardens, agree with Dr. King that the *Calisaya* variety should be planted out instead. His Honor therefore directs that all further planting of the *Succirubra* species should cease, and that future extensions of the gardens should be made with the best varieties of *Calisaya*. The superintendent should submit a definite proposal for any expenditure that may be necessary for preparing the nursery-beds for propagation, and his Honor will sanction it, if funds are available in the Budget.

2. In the very interesting account which the Quinologist has given of his analyses, he describes two methods of obtaining the alkaloids which he thinks worth testing on a large scale. One is the acid and alkali method already in use, and the objection to which is that it leaves a percentage of the alkaloid still in the bark. The other process is to mix the bark with lime, and exhaust with strong spirit. By this process all the alkaloid is yielded up, but it requires somewhat expensive machinery and careful supervision. Mr. Wood suggests that a preliminary trial of this second process should be made in Calcutta, upon a scale sufficient to test the economy of the process; and the Lieutenant Governor approves this suggestion. Mr. Wood will therefore be good enough to come down to Calcutta and make arrangements for carrying out the experiment in question.

3. The Quinologist further urges the necessity of our obtaining exact information as to the value of the bark in the home market, and suggests that in the sale of any consignments sent thereto, the prices obtained for each variety should be carefully noted for communication

communication to him. The Lieutenant Governor would solicit the assistance of the Government of India in this matter, and would request to be favoured with copies of the account sales in London, with the information in question fully detailed therein.

4. The Government of India, in their letter, No. 2444, dated 28th August 1874, have approved of the opening of proper account-books on the plantations, and the Lieutenant Governor will, with the permission of the Government of India, send Mr. Frew, as soon as he has finished the famine accounts at Durbhunga, to put the Quinologist and the head gardener of the plantations in the way of keeping the accounts. His Honor trusts that when this is done—that is the form and the principle of the accounts are decided—Messrs. Wood and Gammie will be able to keep them up without the assistance of an accountant.

5. The Lieutenant Governor desires that in all cases the Superintendent of the Botanical Gardens should be the medium of communicating Government orders to the Quinologist.

ORDERED, that a copy of the Resolution, with copies of the reports, be submitted to the Government of India, in the Department of Revenue, Agriculture, and Commerce for information; that a copy be forwarded to the Superintendent of the Botanical Gardens, and the Government Quinologist at Rungbee, for information and guidance; and that a copy be forwarded to the Secretary to the Government of India, Financial Department, with a request, with reference to paragraph 4 of the Resolution, that the Lieutenant Governor may be permitted to employ temporarily the services of Mr. Frew, as soon as he has finished the famine accounts at Durbhunga, to put Messrs. Wood and Gammie in the way of keeping accounts.

Enclosure 2, in No. 35.

From Superintendent, Royal Botanical Gardens, *Calcutta*, and in charge of Chinchona Cultivation in *Bengal*, to the Secretary to the Government of Bengal.

Government Chinchona Plantation, Mungpoo,
Kurseong, 15 August 1874.

I HAVE the honour herewith to transmit a report by Mr. C. H. Wood, Government Quinologist, giving the results of his analysis of various kinds of chinchona bark produced on the Government plantations here, and of his experiments on the best mode of extracting the medicinal chinchona alkaloids.

2. I take this opportunity of submitting for the sanction of Government certain changes which I propose to make in the species of chinchona to be cultivated in future in these plantations.

3. As Government are aware, the species hitherto most extensively cultivated, not only in these but also in all other chinchona plantations in India and elsewhere, is *chinchona succirubra* (red bark). The reason of this preponderance of *succirubra* lies in the comparative hardiness of the species, and the ease with which it can be propagated. The species known as *chinchona calisaya* (yellow bark), although universally admitted to be more valuable than *succirubra*, forms but a small proportion of any plantation, the reason being that *calisaya* is rather difficult of cultivation by artificial methods.

4. Mr. Wood's opinion of the respective values of the bark of these two species, as indicated in his report, exactly coincides with the opinions expressed by Messrs. Howard, Broughton, and De Vrij; and shortly stated is, that *calisaya* bark contains more quinine than *succirubra*, and in a form more easily separable. I am informed by Mr. Wood that as a fact *succirubra* bark is very rarely bought by quinine-makers as a source of quinine; and that the red bark sold in Europe is chiefly used by druggists for the manufacture of decoctions, liquors, and similar preparations. The demand for such pharmaceutical preparations is but limited, and is very much smaller than the supply of plantation red bark, with which the European markets will soon be flooded. The species *ignota*, mentioned by Mr. Wood in paragraph 9 of his report, resembles *calisaya* in yielding a large proportion of easily extractible quinine, and has the recommendation of being a rapid and vigorous grower, and of thriving at a higher altitude than *calisaya*.

5. Ever since these plantations were begun, steadfast efforts have been made to increase the stock of *calisaya*; and there are now over a quarter of a million of trees planted out. Up to last year, however, the trees seeded but poorly, and we had to rely on artificial propagation, which, as already said, is difficult with this species. Last year the trees seeded well, and as a result we have now several hundred thousand seedling plants. For the first time, therefore, in the history of the plantation are we in a position to extend yellow bark largely.

6. As it has been proved that *calisaya* thrives very well indeed in Sikkim, Mr. Gammie thinks nearly as well as *succirubra*; I would therefore propose that no more *succirubra*

be planted out, except to fill up death vacancies in the existing plantations of that species, and that the future extensions consist of the best varieties of *calisaya* for the lower elevations, and of the new species (temporarily called *ignota*) for the higher elevations, where *calisaya* may be expected not to answer.

7. *Chinchona micranthra*, referred to in Mr. Wood's report, paragraph 10, yields no quinine, and I propose that no more of it be planted. At present there are only a few acres under it.

8. *Chinchona officinalis*, as Government are aware, does not thrive in Sikkim, and is consequently not mentioned in Mr. Wood's report.

REPORT from Government Quinologist, Chinchona Plantations, *British Sikhim*, 5th August 1874.

I HAVE the honour to submit some results of the work I have been engaged upon, which are, I think, sufficiently matured to be brought under the consideration of Government.

1. Unfortunately considerable delay occurred before I was able to enter upon experiments of a precise character, owing to the want of a laboratory. The apparatus and chemicals for my use did not reach here until the end of January, and it was not till the beginning of March that I was in a position to perform accurate analyses. I have the satisfaction to state, however, that the instruments all arrived in good order, and that we have now an excellent commodious laboratory, well suited for any experimental work, which has been fitted up at Rungbee in the house formerly tenanted by the superintendent of the plantations, but which Dr. King resigned for this purpose. The extreme dampness of the climate during the rainy season renders it somewhat difficult to preserve the more delicate apparatus from harm; but I trust that with care no very serious injury will result.

2. My attention has been devoted to two classes of experiments: firstly, to an examination of the barks from the different species of chinchona in cultivation here, with a view to the selection of those kinds which would be best adapted for the extension in progress; secondly, to the determination of the best method for the economical extraction of alkaloid upon a larger scale. The principal species of chinchona which I have as yet examined are the *succirubra*, the *calisaya*, and the *micrantha*.

3. *Chinchona Succirubra.*—As the great bulk of the bark which will be furnished by these plantations for some time to come must be derived from these species, I sought to ascertain in the first place the average quality of the trunk bark now ready for removal. With this view four samples were taken, each sample representing six trees of seven years growth.

	Elevation.	Height of Trees.
No. 1. Ryang - - - -	600 feet	22 feet.
„ 2. Rishap - - - -	2,000 „	24 „
„ 3. Rungbee - - -	2,500 „	24 „
„ 4. „ - - - -	3,000 „	24 „

	1.	2.	3.	4.
Total alkaloids - - - - - - -	6·30	7·24	8·17	7·46
Alkaloid sol. in Ether - - - - -	2·38	2·91	2·39	2·23
Cinchonine - - - - - - - -	2·00	2·60	2·91	2·86
Chinchonidine - - - - - - -	2·00	1·73	2·87	2.37
Cryst. Sulphate of Quinine - - - -	1·80	2·20	1·35	0·90

In all these barks I recognised the presence of quinamine, an alkaloid recently discovered by Hesse, and said to occur only in the barks grown in Sikkim.

4. From these analyses it appears that our stem bark of seven years old contains on an average 7·3 per cent. of total alkaloid. It will be observed that the four samples represent different elevations; and on comparing the results it will be seen that No. 2, growing at 2,000 feet above the sea, yields the largest amount of quinine; No. 1, from a lower level, is next; while Nos. 3 and 4, representing respectively 2,500 and 3,000 feet, show a further gradual diminution. There is at the same time, however, an increase in the amorphous alkaloid in the two latter, and the total yield exceeds that of No. 2. I think many

many more experiments will be needed before any very decided opinion can be formed upon the influence of elevation. The effect of differences in soil, moisture, and exposure, must at the same time be taken into consideration.

5. As yet I have not examined *succirubra* bark of different ages, but I propose doing so immediately, and it would be desirable at the same time to cut down a sufficient number of trees to enable a fair determination to be made of the quantity of bark yielded per tree at succcessive periods of its growth.

6. Much of the bark at present taken for manufacture is from branches necessarily removed in pruning and thinning the trees. I have therefore examined a good many samples of branch bark. As might be expected, the proportion of total alkaloid varies considerably, ranging from 2·5 to 5·3 per cent. The average of my results is, in round numbers, 3 per cent.

7. *Chinchona Calisaya.*—This species displays a great tendency to run into a number of varieties, in this respect differing very strongly from *succirubra*. Samples have been analysed representing the principal varieties growing in these plantationa. Nos. 1, 2, 3, and 4, were taken from Mongoot at an elevation of 2,000 feet; No. 5 from Ryang, 600 feet; and No. 6 from Rungbee, at 3,000 feet.

No. 1, 5 years' old, shrubby variety.
„ 2, ditto under surface of young leaves purple.
„ 3, ditto leaves with light-coloured midribs.
„ 4, ditto „ broader than No. 3.
„ 5, 7 years' old, small green leaves (Ryang).
„ 6, ditto - ditto - (Rungbee).

———	1.	2.	3.	4.	5.	6.
Total alkaloid - - - - -	1·6	6·1	5·57	7·1	5·75	7·4
Alkaloid sol. in Ether - - -	0·82	5·9	5·21	6·93	5·75	7·4
Cyst. Sulphate of Quinine - -	None.	4·53	4·6	6·92	5·34	6·2

8. These results are very gratifying, and they indicate the possibility, by carefully selecting the best varieties, of growing very rich bark capable of easily furnishing pure sulphate of quinine. The foregoing varieties were selected by Mr. Gammie as being the most promising; some other kinds have also been examined, but the results indicate that the barks are inferior.

9. *Species Ignota.*—Dr. King early directed my attention to some plants presenting certain peculiar characters, and provisionally named species *ignota*, which he thought likely to yield good results. He considered that if it should prove rich in quinine it would be particularly valuable, as it grows more rapidly than *calisaya*, and thrives at a higher elevation than that species. At his request a sample of bark was analysed, taken from six trees (7) seven years' old, growing on Rungbee at an elevation of 3,200 feet. It yielded per cent.—

Total alkaloids - - - - - - - -	6·5
Alkaloid sol. in Ether - - - - - -	3·83
Chinchonine - - - - - - - -	0·55
Chinchonidine - - - - - - - -	2·12
Cryst. Sulphate of Quinine - - - - -	4·10

It will be seen that it contains as much quinine as some of the *calisayas*, although it is distinguished from the latter by a much larger proportion of the other alkaloids.

10. *C. Micrantha.*—Two specimens of bark from this species have been analysed. No. 1 is from the six trees seven years' old, growing on the Ryang plantation at 600 feet. No. 2 is from six trees of the same age on the Rungbee Spur at 3,000 feet:—

	No. 1.	No. 2.
Chinchonine - - - - - -	3·5	2·8
Other alkaloids - - - - - -	1·3	2·1
Sulphate of Quinine - - - - -	None.	None.

It will be seen that these results accord generally with those obtained from grey bark chinchonine, being the most abundant alkaloid present.

11. On comparing the analyses of the barks thus far examined, it will be found that certain varieties of *calisaya* are decidedly superior to any of the *succirubra*. It is true that the total alkaloid in the latter species is as much, or even a fraction per cent. more than in the former; but in the one case the total is made of a mixture in nearly equal

proportions of different alkaloids, while in the other it consists almost entirely of quinine. For the manufacture of alkaloids in this country a great advantage would be gained by the employment of a bark yielding quinine to the exclusion of the other alkaloids, because the product would be more readily obtained in a pure and well-defined condition. Operating upon *succirubra* bark, the total yield must either be issued as a mixture of alkaloids in no very definite proportions, or methods of separation must be resorted to which will necessarily complicate the process. In addition to this, *succirubra* bark presents peculiar obstacles to the extraction of the alkaloids in a state of purity, which is not the case with *calisaya*. Both Mr. Howard and Mr. Broughton have referred to this character of *succirubra*.

12. Next in value to the *calisaya* is the species *ignota*, which, while it contains chinchonidine, is rich in quinine and yields but little chinchonine. It would therefore be very suitable for manufacturing purposes.

13. The bark of *micrantha* would be chiefly valuable for the production of chinchonine; but as this is the cheapest of the chinchona alkaloids, and is not held in such high esteem as a febrifuge, the extended cultivation of this species would not appear desirable.

14. *Manufacture of Alkaloid.*—I have also been engaged in carefully testing those processes which appeared to me at all likely to be available for the economical manufacture of alkaloid in India. It is probably unnecessary to give here any details of the results. I may therefore simply state that there are two methods which seem to me worthy of careful comparison upon a larger scale. One of these is now in operation in the factory here, and I propose to extend it so far as to work up the existing supplies of bark. In this method the bark is first exhausted with cold acidulated water, and the resulting liquor precipitated by a caustic alkali. It is therefore essentially the same as that advocated by Dr. DeVrij, although I have found it desirable to simplify the plan of precipitation he recommended.

15. This process, which may be termed the acid and alkali method, is from its simplicity pre-eminently well adapted for the manufacture of alkaloid at a place so difficult of access and so far removed from any centre of general industry as Rungbee. No fuel is required, except what may be necessary to dry the alkaloid obtained; no expensive machinery is involved, the only plant required being some wooden vats and calico filters; skilled labour is unnecessary, and very little supervision is wanted. It would be comparatively easy therefore to extend the scale of operations to any extent that might become needful. A most important consideration however remains, namely, that of expense. The cost of chemicals and labour upon each ounce of alkaloid obtained would be moderate, but the alkaloid obtained does not represent all that was in the bark. There is a certain amount wasted. I am in hopes of reducing this loss still further, and am scarcely prepared therefore to say what the minimum will be. The extent to which it will affect the cost of the product will be best ascertained after the process has been in practical operation a little time.

16. The other method to which I have referred as worthy of a practical trial is to mix the bark with lime and exhaust with strong spirit. The alkaloids are contained in the residue left by the distillation of the spirituous liquor. This, in fact, is the process which has been in use for many years in the analysis of barks, and, as I have reason to believe, has been employed in the manufacture of quinine both in America and Europe. It yields the whole of the alkaloids contained in the bark, and is therefore free from the objection attaching to the acid and alkali process. It is also very simple in its operation; but its successful employment depends on the possession of very perfect means for the recovery of the spirit used. This involves a factory well fitted with steam apparatus. Moreover, the manipulation of large quantities of inflammable liquid, and the management of expensive machinery, requires good organisation of labour and careful supervision. Whether or not such a factory could be fitted up and successfully worked at Rungbee, is a question requiring cautious consideration. To bring the requisite plant and erect it here would be attended with considerable outlay; and if the method should not prove remunerative, the money expended would be absolutely lost. There is already a good deal of plant here, which will, I fear, never be utilised.

17. I would therefore suggest that the method should receive a preliminary trial in Calcutta. Apparatus could be constructed in the dockyard and erected in some convenient place upon a scale just sufficient to test the economy of the process in India. If it failed to prove remunerative, most of the plant could be dismantled and returned into store, or it might find other applications in Calcutta. If it succeeded, the advisability of removing the apparatus here could be easily determined. For such a trial as is here contemplated no very great expenses need be incurred; the money already granted for my establishment would, I think, be sufficient to cover it. No delay need arise by the adoption of this course, because the acid and alkali process could be maintained in full progress here during the trial, and the comparative merits of the two processes would thus be fully tested.

18. One recommendation to a spirit-process here is, that alcohol can be economically made on the spot. I have had some spirit prepared by the native process, and the yield of rectified spirit was 12 per cent. of the grain employed. The cost, including fuel and labour,

labour, I reckon at about 11 annas per proof-gallon. This is very near the price of European spirit, which can be bought in at London for 1 *s.* 3 *d.* to 1 *s.* 5 *d.* per proof-gallon. Fusal oil, which is, as a bye-product, obtained in the manufacture of alcohol, might be substituted for spirit in Calcutta if it was likely to prove a more economical *menstruum.*

19. I have not referred to Mr. Broughton's process, because I have not met with an authentic statement of all its details; but it might be desirable that I should ultimately have an opportunity of becoming practically acquainted with the arrangements which his experience has led him to adopt.

20. *Form in which the Alkaloid should be issued.*—I have already stated that the acid and alkali process is now in operation here, but in a limited scale. About 20lb. of alkaloid have been prepared, which, however, I have retained with a view of endeavouring to convert it economically into a convenient crystalline compound. In this attempt I have met with two obstacles; in the first place the cost of the product is materially enhanced, and in the second it is difficult, short of completely separating the alkaloids, to maintain anything like uniformity of composition. *Succirubra* bark presents peculiar difficulty in the way of cheap and simple manufacture. I propose therefore at once to send to the Surgeon General some of the alkaloid in its precipitated form. If this is approved, a regular supply could now be maintained.

Enclosure 3, in No. 35.

REPORT on the Manufacture of ALKALOID.—By *C. H. Wood,* F.C.S., Government Quinologist.

IN my report of the 5th of August, I stated that I had not referred to Mr. Broughton's process for manufacturing alkaloid, because I had not met with any authoritative statement of its details. After I had written that report, however, Dr. King was kind enough to lend me copies of Mr. Broughton's reports, dated 1st December 1873, and 14th March 1874, in which a full account is given of that process and its results, together with some observations on other manufacturing methods.

The valuable experience acquired by Mr. Broughton in the Neilgherries cannot fail to throw important light on the general economy to be effected by manufacturing alkaloid in Bengal. In my original instructions from the Home Government, I am especially directed to consider the advantages of the method recommended by Dr. De Vrij when compared with that adopted by Mr. Broughton. I beg permission therefore to supplement my report of 5th August with some observations suggested to me by a consideration of Mr. Broughton's report.

2. In order to determine how far the process employed in the Neilgherries demonstrates the general economy of manufacturing alkaloid in India, it will be convenient in the first instance to ascertain, at any rate approximately, the commercial value of the mixed alkaloid extracted from *succirubra* bark. To a private manufacturer its value would be the price he could sell it for; but to the Government its value is the price for which an exactly equivalent febrifuge could be bought. If it costs more than this, there is no economy effected by its manufacture; if it costs less, then a saving results.

The chinchona alkaloids at present are only found in commerce in the separated and pure state, but knowing the composition of our product, it is possible to calculate what its constituents would cost. Mr. Broughton has not given an analysis of the alkaloid he issues, but it may be fairly taken to have the same composition as the total alkaloid present in the bark worked upon. This was red bark, from Neddivettum and Pykara. Analyses of bark from these plantations are given in a report from Mr. Broughton, dated 9th August 1873. From these I propose to calculate an approximate value for the alkaloid as follows:—

RED BARK, NEDDIVETTUM.

Analysis.					*s.*	*d.*		*s.*	*d.*
Quinine -	- 0·55 =	Sulph. Quinine -	- 0·74	@	9	–	=	6	8
Chinchonidine -	1·20 =	„ Chinchonidine -	1·61	@	3	6	=	5	7½
Chinchonine	- 1·94 =	„ Chinchonine	- 2·36	@	1	6	=	3	6½
Quinicine -	- 0·76 =	„ Quinoidine	- 0·8	@	–	4	=	–	3
	4·45						4·45)	16	1

s. *d.*
(3 7½ per oz.

RED BARK, PYKARA.

Analysis.									
Quinine -	- 0·46 =	Sulph. Quinine -	- 0·62	@	9	–	=	5	7
Chinchonidine -	1·66 =	„ Chinchonidine -	2·22	@	3	6	=	7	9½
Chinchonine	- 2·48 =	„ Chinchonine	- 3·00	@	1	6	=	4	6
Quinicine -	- 0·51 =	„ Quinoidine	- 0·5	@	–	4	=	–	2
	5·11						5·11)	18	-½

(3 6½ per oz.

 I have

I have applied this calculation to a good many other analyses of *succirubra* barks, and have always obtained somewhere about the same value: but I have selected the foregoing as examples, because I think they most fairly represent the alkaloid Mr. Broughton obtains. The total alkaloid yielded by the bark available for manufacture on these plantations will closely approximate to the foregoing. The following represents the average composition of that produced up to the present time:—

					s.	d.		s.	d.
Quinine -	- 15·5 =	Sulph.	Quinine -	- 20·2 @	9	– =		181	9½
Chinchonidine	- 29·0 =	„	Chinchonidine	- 38·7 @	3	6 =		135	5½
Chinchonine	- 33·5 =	„	Chinchonine	- 40·7 @	1	6 =		61	–½
Quinicine -	- 17·0 =	„	Quinoidine	- 17·0 @	–	4 =		5	9
Colouring matter, &c. 5·0									
	100·0						100)	384	–½ (3 10 per oz.

3. Of course the market values of the chinchona alkaloids are subject to fluctuation, and I have no means of informing myself of the current rates; but I think the prices I have taken represent sufficiently well the average value, taken over some period of time. If this be the case, it results that a very close equivalent for succirubra alkaloid could be bought for an average price of 3 *s.* 8 *d.* per ounce. At any rate, it is probably safe to consider that if the alkaloid costs more than this to produce, there is, at the present time, no saving effected by its manufacture.

4. During the financial year 1872-1873, Mr. Broughton operated on a quantity of wet bark, containing altogether 537·9 lbs. of alkaloid as determined by analysis. This yielded him in manufacture only 345·68 lbs. of product. It is evident therefore that 35·74 per cent. of the entire alkaloid present in the bark was lost in the process of extraction. This result is very important, and being deduced from the practical working of a well-established and carefully conducted factory, is much more trustworthy than any experimental determination would be.

5. The cost of manufacture for that year is stated to be *Rs.* 2,823. 11. 9., or eight annas two pies per ounce of alkaloid. This of course does not include the cost of the bark, but simply factory expenses. Mr. Broughton only gives the ratio of the cost to the alkaloid produced; but this ratio must obviously vary with the quality of the bark. The money expended will depend on the quantity of bark treated, and not on the amount of product obtained. The chemicals, fuel, labour and depreciation of plant for 100 lbs. of bark must be pretty much the same, whether the yield of alkaloid is great or small.

6. It appears to me useful therefore to take the cost of working a pound of bark, and then to examine the quality of the bark which was used. The whole quantity of wet bark employed was equal to 19,041 lbs. of dry bark. Dividing the total cost by this figure, we obtain three-pence halfpenny (3½ *d.*) as the cost of working per pound of dry bark.

7. The total quantity of bark contained an average of 2·82 per cent. of alkaloid. This average, however, includes a very wide range; the minimum being 0·5 and the maximum 7·1 per cent. On this account it will be found advisable, in studying the results of the process, to divide the bark into three qualities; the first quality containing from 0·5 to 0·7 per cent. of alkaloid; the second from 1·0 to 2·6 per cent; the third from 3·5 to 7·1 per cent. of alkaloid.

We thus have—

Weight of Dry Bark.	Average Per-centage of Alkaloid.	Total of Alkaloid in Weight of Bark.	Weight of Alkaloid yielded by Process (64·26 per Cent. of Total).
Lbs.		*Lbs.*	*Lbs.*
1. 5,856 - -	0·53	31·3	20·1
2. 3,830 - -	1·86	71·5	46·0
3. 9,355 - -	4·65	435·1	279·6
19,041	- - -	537·9	345·7

8. In the case of No. 1, it will be seen that 291 lbs. of bark are required to yield 1 lb. of alkaloid—

	s.	d.
291 lbs. of bark at nil - - - - - - - - -		—
Working expenses at 3½ *d.* per lb. - - - - -	84	10½

The

The product extracted from this portion of the bark therefore cost 5 *s.* 3½ *d.* per ounce for working expenses alone, or 1 *s.* 7½ *d.* per ounce more than it could have been purchased for according to the alkaloid value I have given in paragraph 2. Even if the total per-centage of alkaloid could have been obtained, the result would have been scarcely remunerative. Consequently, unless the cost of manufacture can be materially reduced, it is more profitable to reject all bark as utterly worthless that contains much less than 1 per cent. of alkaloid.

9. With No. 2 quality, 83 lbs. of bark are required to yield 1 lb. of alkaloid. In this case it is possible to give a small value to the bark—

	s.	*d.*
83 lbs. of dry bark @ 3 *d.*	20	9
Working expenses @ 3½ *d.*	32	6½
Alkaloid	53	3½

or 3 *s.* 4 *d.* per ounce.

10. With No. 3 quality, only 33½ lbs. of bark are required to obtain 1 lb. of alkaloid, and a higher value can therefore be given to the bark—

	s.	*d.*
33½ lbs. of dry bark @ 1 *s.* 4 *d.*	44	8
Working expenses @ 3½ *d.*	9	9¼
	54	5¼

or 3 *s.* 4¾ *d.* per ounce.

11. It follows from these results that the cost of extraction per ounce of alkaloid varies with the quality of the bark, as follows:—

Bark.	Yield of Alkaloid.	Cost of Extraction per Oz.
Lbs.	*Lbs.*	*s.* *d.*
No. 1. 5,856	20·1	5 3½
No. 2. 3,830	46·0	2 −⅜
No. 3. 9,355	279·6	− 7¼

12. In arriving at this result, I have assumed that in each case 64·26 per cent. of the total alkaloid present is obtained; in other words, that the per-centage of alkaloid lost by the process is the same, whether the bark be rich or poor. It is probable that the loss would be less in the case of a rich bark, but this there is at present no data to show.

13. It will be observed that in the case of barks Nos. 2 and 3, I have attached such a price to them as will bring the cost of the product up to near about the money value I have assessed it at. In the case of No 3, this price is 1 *s.* 4 *d.* per pound. Before finally determining that this sum is wholly available for bark, it is necessary to ascertain that the charge of 3½ *d.* per pound is sufficient to cover all other expenses. The statement of expenditure for working the 19,041 lbs. of bark includes no charge for wear and tear of plant, nor for interest of capital sunk in the factory. Both these items should be estimated and charged. From the statement given in Mr. Broughton's report, dated 14th March 1874, it would appear that the Neddivettum factory has cost for building and apparatus, in round numbers, 10,000 rupees. The interest on this sum would, I presume, be reckoned at 5 per cent. per annum. Another 5 per cent. would not be at all an extravagant estimate for wear and tear, but it would probably prove sufficient. If my view is correct on this matter therefore, 1,000 rupees should appear as a yearly charge in addition to the actual expenses. But it seems that through the dearth of bark at certain seasons, the factory was not worked to the full extent of its power during the year 1872–73, and I infer that the plant is sufficient for about 30,000 lbs. of bark per annum. Dividing 1,000 rupees by this amount, we obtain a fraction over ¾ *d.* per pound as an additional charge for depreciation and interest, which amount should be added to the 3½ *d.*

14. The Quinologist's pay is also excluded from the statement of expenditure. Mr. Broughton gives in the report his reasons for adopting this course. It certainly appears to me that a factory once well established ought to be relieved, as far as possible, from the expensive supervision of a scientific Quinologist, which would entail a heavy tax on the alkaloid produced. But as the Quinologist's services must at any rate be pretty fully absorbed in starting the factory, some addition to the capital account should, I conceive, be made to meet this outlay.

15. Assuming, then, that the working expenses for Mr. Broughton's process, including interest and depreciation of capital, are covered by 4½ *d.* per pound of bark treated, and that 64·26 per cent. of the total alkaloid can be obtained from bark of any quality;

assuming also that 3*s.* 8*d.* per ounce represents the commercial value of the manufactured product, it results that the following scale of prices can be allowed for the bark without loss occurring by the manufacture:—

Per-centage of Alkaloid in Bark.	Price allowable for Bark per Lb.
	s. *d.*
7	2 3
6	1 10½
5	1 6
4	1 1½
3	– 9
2	– 4½
1	—

If these prices are more than could be realised by selling the bark, then the manufacture will be profitable; but if they are less, it would obviously be more economical to sell the bark and buy the alkaloid.

16. Unfortunately we have very little data for determining the selling value of our bark. Although several sales of Indian bark have taken place, I can only find one instance in which the exact price realised by each lot is recorded. A large quantity of Neilgherry bark went to England last year, and analyses of each kind sent are given in Mr. Broughton's reports; but I can only find the maximum and average prices obtained. As the consignment contained crown bark and grey bark, as well as red bark, both stem and branch, it is impossible to make use of the average price in a close calculation.

In August 1871, however, a consignment of red bark from the Neilgherries was sold in London, of which all the particulars are recorded—

———	Weight of Bark Sold.	Per-centage of Alkaloid.	Price Realised.
	Lbs.		*s.* *d.*
Old mossed	1,016	7·61	2 3
Small mossed	924½	6·56	2 6
Unmossed	287½	5·43	2 10
Average	–	6·9	2 5⅛

From this it appears that the best *succirubra* bark, containing from 6 to 7 per cent. of total alkaloid, will realise an average price of 2*s.*. 5*d.* per pound in London. The general statements given of the results of other and more recent sales seem, on the whole, to confirm this conclusion.

17. Accepting, then, 2*s.* 5*d.* as a fair estimate, we have to deduct from it the following charges:—

Packing cases.
Freight from plantations to London.
Landing and warehouse charges.
Insurance.
Broker's commission.
Tret allowances.

Here, again, there is no information of what these charges amount to. I have heard from private growers that they are not less than 7 *d.* or 8 *d.* per pound. If this be the case, we have 1 *s.* 9 *d.* to 1 *s.* 10 *d.* per pound as the net price of the bark realised after it is sold in London. But this is bark containing 6·9 per cent. of alkaloid, and according to the scale I have given it is therefore worth 2 *s.* 2½ *d.* for Mr. Broughton's process.

18. Whether or not the price of red bark in the London market will bear a strict relation to the per-centage of alkaloid, there is very little evidence to show. If the bark were bought by alkaloid makers there can be no doubt such a proportion would maintain; but almost all the red bark hitherto sold has been bought for pharmaceutical purposes.

General

General appearance in such a case would greatly influence the purchaser. Inasmuch, however, as poor bark is chiefly from branches, it is probable that the scale would, in the main, hold good. It must be remembered also that most of the Pharmacopœias forbid the use of bark containing less than a certain amount of alkaloid.

19. If red bark, containing from 6 to 7 per cent. of alkaloid, realises when sold a net price of 1 *s.* 10 *d.*, and assuming that bark of inferior per-centage would only command a correspondingly inferior price, then it follows that Mr. Broughton's process is profitable, and that it would be more economical for Government to extract alkaloid by that method than to sell the bark.

20. To arrive at the foregoing results, I have taken as the basis of calculation throughout, what I conceive to be the commercial value of the alkaloid. To ascertain whether the manufacture of alkaloid by this process is a profitable use of the bark, it seemed necessary to compare the commercial value of the raw material with that of its educt. But this commercial value of the alkaloid simply represents the price that would have to be paid for an equivalent febrifuge; it in no way shows the cost of the alkaloid to Government.

21. The cost price of the mixed alkaloid must entirely depend on the cost price of the bark. On the latter point no information at present exists. It is true that Mr. MacIvor has estimated the cost of dry bark at from 4 *d.* to 6 *d.* per pound, but that estimate takes no account of the per-centage of alkaloid in the bark, and it is evident that the per-centage may range from 0·5 to 7·0. No accurate calculation therefore can be based on that datum. The 19,041lbs. of bark supplied to Mr. Broughton only contained an average of 2·82 per cent. of alkaloid. According to the scale of prices I have given, based on the commercial value of the alkaloid, it was only worth 8 *d.* per pound. Taking its cost price at Mr. MacIvor's lowest estimate, namely, 4 *d.* per pound, and the working expenses at 4½ *d.*, Mr. Broughton's alkaloid cost 2 *s.* 5¼ *d.* per ounce; but if the bark had contained an average of 5 per cent. of total alkaloid, then, taking its cost price at 6 *d.* per pound, the product would have cost only 1 *s.* 8¼ *d.* per ounce.

22. Consequently, if we may assume that the total yield of bark from the plantations will contain an average of 5 per cent. of alkaloid, and that it can be produced at a cost of 6 *d.* per pound, then it follows that Mr. Broughton's process will admit of alkaloid being furnished to the Government dispensaries at a cost price of a trifle under a rupee an ounce.

23. It is obvious, however, that this process will not admit of the supply of alkaloid at a rupee an ounce, taking the bark at its commercial value instead of its cost price. I presume Government would not wish to sell their alkaloid in the bazars, excepting at such a reasonable profit as would admit of private planters competing with them, because the adoption of such a course would tend to check the development of chinchona cultivation as a branch of commercial industry. Attaching such a profit to the cost price of the alkaloid as would make the undertaking commercially profitable however, would bring the product too near its present commercial value to accomplish the object which the Government has in view. For the furtherance of that object, a more economical process should be sought for.

24. In my report of 5th August, I have shortly stated my reasons for recommending an extended trial of the two methods therein described. An attentive study of Mr. Broughton's results has strengthened my conviction of the desirability of this course. Mr. Broughton's process is somewhat complicated for native labour, especially if it is to be carried out on a very large scale. I am disposed to think that the acid and alkali method will prove to be more economical, and certainly very much simpler. The loss of alkaloid which occurs in working Mr. Broughton's process is very considerable. I anticipate that by the lime and spirit method the loss will be inappreciable, and an increased yield would add greatly to the economy of manufacturing alkaloid in India.

25. In conclusion, I would respectfully urge the desirability of obtaining full information on the value of bark in the home market.

When consignments of Government bark are sold, a knowledge of the detailed prices realised by each lot that has been separately analysed would be very useful. A statement of the total expenditure involved in sending the bark home is also much needed.

Enclosure 4, in No. 35.

From the Secretary to the Government of India to the Secretary to the Government of Bengal.

Calcutta, 29 December 1874.

I AM directed to acknowledge the receipt of copies of reports by Mr. Wood, the Government Quinologist at Rungbee, on the analysis of the bark yielded by the Government chinchona plantations, and on the economical results to be obtained by the working of Mr. Broughton's process for the extraction of chinchona alkaloids, together with the

resolution thereon, forwarded with Mr. Knight's endorsement, No. 3,593, dated the 15th instant, and in reply, to say that the reports are very interesting.

2. The information which it is desired in paragraph 3 of the resolution may be obtained as to the prices realised for each variety of the bark sold in the home market will be asked for from the Secretary of State.

3. With reference to the first paragraph of the resolution, directing that all further planting of the *succirubra* species should cease, I am to call attention to paragraph 4 of the Despatch from the Secretary of State, No. 54, dated the 5th ultimo, a copy of which was forwarded with the endorsement from this department, No. 2,763, dated the 9th instant, and to say that it appears to be a matter for consideration whether all the *succirubra* seedlings in the nurseries should not be planted out, at the same time that every exertion is made to extend rapidly the cultivation of the better sorts of the *calisaya* variety.

— No. 36. —

(No. 13.—Revenue.)

From the Secretary of State for India to the Government of India.

India Office, London, 4 March 1875.

Para. 1. I HAVE received and considered in Council the interesting reports of Mr. Wood, the Government Quinologist, on the manufacture of chinchona alkaloids, which are forwarded with your Excellency's Despatch, dated 1st January (No. 1) 1875.

2. Mr. Wood has already tried two methods experimentally, and the further trial of the second process at Calcutta will, I trust, settle the question of economy, and enable a decision to be formed as to whether the apparatus shall be removed to the Sikkim plantation, with a view to the manufacture of a continuous supply of the alkaloid in that form.

3. I observe that you have sanctioned Dr. King's recommendation that no more *succirubra* trees be planted out, and that future extensions consist entirely of *calisaya* trees. The ground for this recommendation is that *calisaya* barks contain more quinine than *succirubra*, and in a form more easily separated; and further, that red bark is rarely bought by quinine makers as a source of quinine.

4. It appears from Dr. King's reports, that that officer does not altogether keep in view the object of introducing chinchona cultivation into India. That object has been emphatically stated by my predecessors not to be a commercial object, but one having reference solely to the supply of a cheap febrifuge to the people of India. The question for Dr. King and Mr. Wood to consider is, not what kind of bark fetches the highest price in the London market, and is most sought after by the quinine makers, but which kind yields the largest per-centage of alkaloids which have been proved to be efficacious in the cure of fever. The Medical Commission appointed by your Government some years ago reported that the efficacy of chinchonidine and quinidine was equal to that of quinine. I desire, therefore, that the officers in charge of chinchona cultivation may be instructed that their aim should not be to grow the largest amount of quinine yielding bark simply, but to grow the bark yielding the largest per-centage of febrifuge alkaloids generally. If the alkaloids in the *calisaya* bark are more easily separated than in that of the *succirubra*, and the per-centage of yield is about equal, this is certainly a reason for preferring the former species; but it should be understood that the object of chinchona cultivation is primarily to supply the people of India with a cheap febrifuge, and that it is not a commercial speculation.

5. With reference to your request to be supplied with information as to the results of sales in this country, I herewith * transmit copies of the particulars of bark sales in the London market, for the months of January and February. The particulars are printed every fortnight, and in future they will be regularly ransmitted to the Secretary to your Government.

* Not given.

I have, &c.
(signed) *Salisbury.*

— No. 37. —

(No. 5.—Agriculture.)

From the Government of India to the Secretary of State for India.

Calcutta, 15 January 1875.

In compliance with the request contained in the 2nd paragraph of your Lordship's Despatch, No. 51, dated the 24th September last, we have the honour to forward* 2 lbs. of the combined alkaloids extracted by Mr. Wood from the red bark grown in the chinchona plantations in British Sikkim.

* Per overland parcel post.

We have, &c.
(signed) *Northbrook, &c.*

— No. 38. —

(No. 10.—Agricultural.)

From the Government of India to the Secretary of State for India.

Simla, 6 May 1875.

We have the honour to forward, for your Lordship's information, copy of a communication * from the Government of Bengal, submitting a report by Dr. King, the officer in charge of chinchona cultivation in Bengal, on the subject of the desire expressed in the 4th paragraph of your Lordship's Despatch, No. 54, dated the 5th November last, that the planting of *C.* "*calisaya*" might not be carried out to the exclusion of *C.* "*succirubra.*"

* No. 1226, dated 5 April 1875.

2. We take this opportunity, with reference to the 4th paragraph of your Lordship's Despatch, dated the 4th March last, No. 13, to point out that it was not intended by the orders conveyed in our letter to the Government of Bengal, No. 2,803, dated the 29th December 1874, that the planting out of *C.* "*succirubra*" should cease entirely, but only that, for the present, special attention should be paid to multiplying the best varieties of *C.* "*calisaya.*"

We have, &c.
(signed) *Northbrook, &c.*

Enclosure in No. 38.

From the Superintendent, Royal Botanical Garden, Calcutta, and in charge of Chinchona Cultivation in Bengal, to the Assistant Secretary to the Government of Bengal.

Royal Botanical Garden, Howrah, 5 April 1875.

I have the honour to acknowledge the receipt of your office letter, No. 100A (Financial Department, Agriculture), dated 31st ultimo, in continuation of your No. 100, dated 12th January, calling for a report on the apparent desire of the Secretary of State for India, as expressed in paragraph 4 of his Lordship's Despatch marginally quoted, to favour the extension of *chinchona succirubra* rather than *chinchona calisaya* in Sikkim. In reply, I have the honour to state, that the whole of the young *succirubra* plants returned as in stock on 31st March 1874, have been planted out chiefly to fill death vacancies in the existing plantations. Since the receipt of a copy of the Secretary of State's Despatch already referred to, I have had a large quantity of *succirubra* seed sown, and the resulting seedlings will be ready for planting out during the financial year that has now begun. At the same time, no effort has been spared to propagate young plants of those varieties of *calisaya* which Mr. Wood's analysis have shown to be so rich in quinine as to rival the finest Amerian yellow bark. For this purpose, the old propagating beds have been put into order, and some new ones have been built. These beds are now filled with cuttings of varieties of *calisaya*, yielding from 4 to 7 per cent. of quinine, and also with cuttings of the new species alluded to in my last annual report, and which, besides growing freely, contains much alkaloid. Our experience during last year has proved that in spite of all our hopes, *calisaya* cannot be trusted

No. 54, dated India Office, London, the 5th November 1874, to his Excellency the Right Honourable the Governor General of India in Council.

trusted to come true to seed. I have, therefore, determined to rely on propagation by cuttings as the only method of increasing that species. From what I have now written, you will observe that the Secretary of State's wish as to the extension of chinchonidine-yielding species is being carried out, and that at the same time no effort is being spared to rear a large stock of quinine-yielding plants.

— No. 39. —

(No 16.—Agriculture.)

From the Government of India to the Secretary of State for India.

Simla, 23 August 1875.

In continuation of our Despatch, dated the 1st September 1874, No. 53, we have the honour to forward a resolution by the Government of Bengal, dated the 26th ultimo, with copy of the report by Dr. King therein referred to on the Government chinchona plantation in British Sikkim for the year ending the 31st March 1875.

We have, &c.
(signed) *Northbrook, &c.*

Enclosure 1, in No. 39.

Resolution of the Government of Bengal.

Read— Calcutta, 26 July 1875.

The Annual Report of the Government Chinchona Plantations, British Sikkim, for the year ending the 31st March 1875.

1. The operations connected with the chinchona cultivation exhibit a continued measure of success which is satisfactory. The number of trees planted out during the year in the permanent plantations was—

Red Bark trees	310,000
Yellow bark trees	60,000
Hybrids	15,000
Total	385,000

This brought up the total number of plants in the permanent plantations to—

Red bark trees	2,390,000
Yellow bark trees	354,000
Hybrids	21,000
Total	2,765,000

Or, in round numbers "the Government Chinchona property in Sikkim consists of three millions of red bark trees, of half-a-million of other sorts, and a nursery stock of about half-a-million plants." The red bark trees, the younger plantations in particular, have been in good condition during the year. The experiments with *calisaya* seed have proved a failure, owing to the uncertainty which was found to attend the result of planting those seeds which appeared to promise best. The following account is given of the analysis of some plants, and of the trial of their seeds:—"Mr. Wood's analysis, and also those of Mr. Broughton, go to prove that difference in these respects (*i. e.*, in results) is accompanied by difference in the chemical composition of the bark. Of six varieties of our *calisaya*

calisaya analysed during the year by Mr. Wood, one was found to contain as much as 7·4 per cent. of total alkaloid, of which no less than 6·2 were of crystalline sulphate of quinine; a second yielded 7·1 per cent. of total alkaloid, of which 6·9 were crystalline sulphate of quinine; while a third specimen gave so poor a result as 1·6 per cent. of total alkaloid, of which no part was quinine. The seed saved from the finer sorts was carefully collected and sown. It produced, however a large proportion of seedlings with such unmistakeable resemblance to the worst varieties, that it was decided not to plant out any of them, and in future to trust to propagation by cuttings alone for any extensions which may be made in our plantations of this species." The hybrid plants promise great success; they yield a bark rich in alkaloids, and are of a vigorous growth.

2. The extension of the red bark tree cultivation meets the views of the Secretary of State, expressed in his Despatch of the 5th November 1874. It appears that though the red bark is not so rich in quinine as the yellow variety, it nevertheless yields a greater total of alkaloid, which is as efficacious a febrifuge as quinine itself. If the further inquiries which are now being instituted should prove this to be the fact, the resolution of the 15th December 1874, which prohibited the extension of *C. succirubra* cultivation, will require to be modified. The reports called for in the same Despatch as to the efficacy of chinchonidine have not been received, but Mr. Wood, in his report of the 24th May 1875 (paragraph 9), states that he supplied to the medical authorities an alkaloid consisting of chinchonidine and chinchonine, and he understands that both Dr. Chevers and Dr. Ewart are fully satisfied of its efficacy and are quite prepared to recommend its adoption in all Government hospitals and dispensaries. It also appears that this alkaloid was administered in some cases to coolies suffering from fever on the Sikkim plantation, and at the Botanical Garden in Calcutta, and was found to be an efficient febrifuge.

3. With reference to the remarks made in the 5th paragraph of last year's review, regarding Dr. King's recommendation of an alternative preparation of bark instead of the sulphate of chinchonidine, he has explained that he did not make the proposal to use a decoction of twig bark in ignorance, or depreciation of the merits of that alkaloid as a febrifuge, but merely as a means of utilising *twig* bark from which the Quinologist informed him he would not be able to extract any of the alkaloids with profit, and which was not worth sending to England.

4. Some experiments were made during the year in taking bark by Mr. McIvor's mossing process. Dr. King reports that sufficient time has not elapsed to allow him to report decidedly regarding the result, but that it does not promise well. The result of coppicing, on the other hand, has been quite satisfactory. The coppicing and pruning operations produced 39,405 lbs. of dry bark, of which 15,160 lbs. were made over to Mr. Wood, and 4,047 lbs. were supplied to the medical storekeeper. The remainder was kept in stock until Mr. Wood was ready to receive it. In these cases, there are no separate reports of the results obtained. Dr. King sees no difficulty in furnishing 200,000 lbs. of dry bark during 1875–76.

5. Owing to the long-protracted and severe cold season, the yield of bark did not reach the estimate of 70,000 lbs., but the 30,000 lbs. by which the amount fell short was collected in the first month of the financial year 1875–76.

6. The inquiries of the Government Quinologist have resulted in a cheap and efficient method of extracting the febrifugal alkaloids from chinchona bark. The report of these inquiries and their result has been reviewed in a separate resolution. The Lieutenant Governor approves of the measures taken to effect a survey of the plantation.

7. The experiments made on the application of manure to the plants had no appreciable effect upon the proportion of total alkaloid yielded. Further experiments must be made before any opinion can be formed on the subject.

8. The Lieutenant Governor notices with satisfaction the approval expressed by Dr. King of the services of the resident manager of the plantation, Mr. Gammie, and of the subordinate gardeners.

ORDERED, that copies of this Resolution and of the report be submitted to the Government of India, in the Department of Revenue, Agriculture, and Commerce; also that copy, with 100 copies of the report, be forwarded to the Superintendent of the Botanical Gardens, and in charge of chinchona cultivation, for information, with reference to his letter No. 53C., dated the 16th June 1875.

Enclosure 2, in No. 39.

THIRTEENTH ANNUAL REPORT of the GOVERNMENT CHINCHONA PLANTATIONS in *British Sikhim*, by *George King*, Esq., M.B., F.L.S., Superintendent, Royal Botanical Garden, Calcutta, and in charge of Chinchona Cultivation in Bengal.

1. As Government are aware, the plantations consist practically of the two sorts of chinchona trees yielding the barks respectively known as red and yellow. The cultivation of the species producing grey and crown bark has been abandoned; grey bark being so poor in the more valuable alkaloids, and the crown bark tree, although at one time it promised well, having ultimately proved unsuitable to the climate of Sikhim.

2. During the past year, the older red bark trees have been on the whole healthy, and their growth has been fairly good. The younger plantations in the better soil and climate of the lower part of the valley are looking extremely well, and in many places the growth has been very luxuriant indeed. The number of red bark trees planted out during the year is 310,000, bringing the total number in the permanent plantation up to 2,390,000. These 310,000 represent young plants put into the ground in extension of the permanent plantation, and do not include the numerous plants required to fill the vacancies in the older parts of the plantation caused by death and accident. There are, besides, a large number of seedlings in the nurseries, and a quantity of seed has been sown; large extensions will therefore be made before the end of the year that has now been entered on, the Secretary of State having directed the more extensive cultivation of this species.

3. To the yellow bark plantation 60,000 plants have been added during the year. The total number is now therefore 354,000 young trees, exclusive of the stock in the nursery beds. As I have mentioned in former reports, this species did not for a long time seed freely in Sikhim. During the last two years, however, a considerable quantity of seed was produced, and this was carefully saved, care being taken to collect only from the varieties which Mr. Wood's analysis showed to yield the best quality of bark. It has long been suspected that *calisaya* is, in the language of gardeners, rather liable to sport; in other words, that seeds taken from the same tree often produce plants very dissimilar to their parents, and also to each other, in habit and shape of leaf. Mr. Wood's analysis, and also those of Mr. Broughton, go to prove that difference in these respects is accompanied by difference in the chemical composition of the bark. Of six varieties of our *calisaya*, analysed during the year by Mr. Wood, one was found to contain as much as 7·4 per cent. of total alkaloid, of which no less than 6·2 were of crystalline sulphate of quinine; a second yielded 7·1 per cent. of total alkaloid, of which 6·9 were crystalline sulphate of quinine; while a third specimen gave so poor a result as 1·6 per cent. of total alkaloid, of which no part was quinine. The seed saved from the finer sorts was carefully collected and sown. It produced, however, a large proportion of seedlings with such unmistakable resemblance to the worst varieties, that it was decided not to plant out any of them, and in future to trust to propagation by cuttings alone for any extensions which may be made in our plantations of this species.

4. A third species, referred to in former reports as a "hybrid," having been found to yield a bark rich in alkaloid, and being of vigorous growth, has received attention; and since last year the number of plants in permanent plantation has been increased from 6,000 to 21,000; there is, besides, a nursery stock of 23,000.

5. In round numbers, then, the Government chinchona property in Sikhim consists of three millions of red bark trees, of half a million of other sorts, and of a nursery stock of about half a million plants. There is still much excellent land within the reserve well suited for chinchona; and as our nurseries are well stocked with young plants, especially of chinchona *succirubra*, considerable extensions can be undertaken without difficulty.

6. During the year some experiments were made in taking bark by Mr. McIvor's mossing process. This, as Government are aware, consists in partially denuding the trunk of a chinchona tree of its bark, and of applying moss to the denuded portion with the view of promoting a fresh formation of bark thereon. In making this experiment, Mr. McIvor's published accounts of his method were strictly followed. Sufficient time has not yet elapsed to allow me to report decidedly regarding the result, but it does not promise well. The soft, newly-forming bark proves highly attractive to ants, which are very numerous in Sikhim, and these insects in many cases removed much of it as fast as it was formed; moreover, in a good many cases, no new bark whatever was formed over the wounds. Coppicing has been carried on to a considerable extent. This, although undertaken primarily as a means of thinning the plantations where that was necessary, has also served as an experiment in this method of harvesting the bark-crop.

The result has been satisfactory. It has confirmed our former experience that red bark trees in Sikhim shoot freely from their cut stumps, and that if the resulting shoots are judiciously reduced in number, they grow with great rapidity and vigour.

7. From

7. From these thinnings, and also from some pruning operations, 39,405 pounds of dry bark have been obtained. Of this quantity, 15,160 pounds have been made over to Mr. Wood, the Government Quinologist, and 4,047 peunds have been supplied to the Medical Storekeeper, Calcutta. The remainder is in stock, and will be made over to Mr. Wood, as he can manufacture it. In my last report I estimated 70,000 pounds of dry bark as the probable outturn for the year. The deficiency now reported is entirely due to the long-protracted and comparatively severe cold season, which necessitated the suspension of all cutting for an unusually long period of the year. For it has been the invariable experience on the plantation that during cold weather the bark clings so tenaciously to the wood, that great labour and loss are involved in removing it, whereas during warm and moist weather it is readily separable. But although not collected before the end of the financial year, and therefore not returnable as part of last year's produce, the 30,000 pounds by which the outturn falls short of the estimate, were collected during the first month of the year now entered on. The estimated yield has therefore been substantially reached.

8. Several facts point to the conclusion that the time at which chinchona *succirubra* trees are most profitably cut for their bark is when they are about eight years old; in other words, that red bark is an eight years' crop. The earliest year during which any considerable number of trees was planted in Sikhim is 1867. Prior to that, only a few trees had been put out. These trees of 1867 are now therefore in their eighth year. Moreover, the recently-appointed Quinologist has now settled on a cheap and efficient method of extracting the total febrifrugal alkaloids from chinchona bark. The time appears now, therefore, to have arrived at which the plantation must begin to be worked on some systematic plan. As a basis for such a plan, an accurate survey of the area actually planted, and an estimate of the probable yield of bark per tree, become objects of much importance. The former is now being carried out by an officer of the Revenue Survey Department, who is located on the plantation, where he will remain until the work is finished. The calculation of the actual yield of bark per tree was undertaken by Mr. Wood, who has submitted a report on the subject, which is now before Government.

9. During the year now begun I see no difficulty in furnishing 200,000 pounds of dry bark, but I think it would be better for the present to be guided as to the quantity harvested by the capabilities of the Quinologist's factory than to fix any definite amount, and to insist on so much being taken. Bark does not improve by being stored; on the other hand, it increases in weight by being left on the trees until actually wanted for the factory.

10. Arrangements have been made for drying and storing the bark at Mungpoo, where also a number of tubs for carrying out Mr. Wood's process of extraction have been put in position.

11. As mention in last report, some trees were treated with manure of different sorts. Mr. Wood has examined the bark of these, and reports regarding it as follows:—

"The trees were planted out at Mungpoo in April 1872. To one portion farm-yard manure was applied in June 1873, and in June 1874 sulphate of ammonia (3 oz. per plant) was applied to a second portion; guano (6 oz. per plant) to a third, and oil-cake (2 lb. per plant) to a fourth portion; one patch remaining unmanured for comparison. Strips of bark were taken from the stems of a number of trees in each group in September 1874, and the total alkaloid determined, with the following result:—

"Bark from unmanured plants	-	-	-	7·4	per cent. total alkoloid.
„ trees manured with cattle-droppings	-		-	6·33	„ „
„ „ „ fixed guano	-		-	6·68	„ „
„ „ „ sulph. ammon.	-		-	7·27	„ „
„ „ „ castor-oil cake	-		-	7·60	„ „

"It will be seen that no appreciable effect had been produced upon the proportion of total alkaloid in the stem bark. But I do not think that any useful inference can be drawn from this result. If the manure will increase the growth of the tree, the effect will be nearly as valuable as if it had augmented the proportion of alkaloid within the bark. I would suggest therefore, that the application of manure to this experimental patch should be repeated every second year; and when the trees are seven or eight years old they should be cut down, and the total result determined."

12. The Budget allotment for the past year was 89,525 rupees, and the total expenditure was *Rs.* 60,280. 4. 6., being *Rs.* 48,229 8. 6. on plantation account, and *Rs.* 12,050. 12. drawn by the Quinologist. This shows a saving of *Rs.* 29,244. 11. 6. The largeness of the amount saved is due chiefly to the determination to incur no expense on factory buildings while Mr. Wood's experiments on a manufactory process were pending. Previously existing and temporary buildings were therefore used, and

nothing new was erected. The sum of *Rs.* 2,820. 14. was credited to the plantation for the 4,047 pounds of bark supplied to the Medical Storekeeper, and *Rs.* 700. 12. 6. of land revenue were paid into the Darjeeling treasury.

13. Seed to the following amount was distributed to various applicants during the year:—

	Ozs.
C. Succirubra - - - - - - - - - -	280
C. Officinalis - - - - - - - - - -	50
C. Calisaya - - - - - - - - - -	18
TOTAL - - -	358

14. A beginning has at last been made in the manufacture of a cheap, efficient alkaloid, and the great object of Government in establishing these plantations appears on the point of realisation. Mr. Wood's chinchona febrifuge is an amorphous powder of a very pale buff colour, and entirely free from resin. It is readily soluble in water, slightly acidulated with sulphuric acid. About 30 pounds of this powder were sent to the Surgeon General, Indian Medical Department, during August and September. This quantity was distributed amongst four medical officers of much experience, for the purpose of being submitted by them to a comparison as regards febrifugal power with the sulphate of quinine in ordinary use. Their reports, which are understood to be highly favourable, are now, I believe, before Government. I may mention that this alkaloid has also been given, with the best results, to coolies suffering from fever, both in the plantation in Sikhim and in the Botanical Garden, Calcutta. I have also had some given to villagers living outside the garden. In all cases I have found it an efficient febrifuge, and it is highly prized as such by the people who have been cured by it.

15. Mr. Biermann, the second gardener, returned from sick furlough to Europe in November, and Mr. Kennedy, who had been acting for Mr. Biermann, retired from Government service on the return of the latter.

16. In conclusion, I have to express my best thanks to Mr. Gammie, the resident manager of the plantation, for his continued good service. My acknowledgments are also due to Messrs. Biermann and Jeffrey for the way they have conducted their duties. Mr. Kennedy, although now no longer a Government servant, also merits my thanks.

17. The usual returns are annexed.

TABLE showing the Number and Distribution of CHINCHONA PLANTS in the Government Plantations at *Darjeeling*, on the 1st April 1875.

Names of Species of Chinchona.	Number in Permanent Plantation.	Number of Stock Plants for Propagation.	Number of Seedlings or Rooted Cuttings in Nursery Beds for Permanent Plantations.	Number of Rooted Plants in Cutting Beds.	Number of Cuttings made during the Month.	Total Number of Plants, Cuttings, and Seedlings.
C. Spignosa - - - -	21,000	1,000	15,000	5,000	2,000	44,000
C. Succirubra - - -	2,390,000	- -	35,000	200,000	- -	2,625,000
C. Calisaya - - - -	354,500	- -	116,000	125,000	20,000	615,500
C. Micrantha - - - -	50,000	- -	- - -	- -	- -	50,000
C. Officinalis and Varieties -	125,000	- -	- - -	- -	- -	125,000
C. Pahudiana - - -	5,092	- -	- - -	- -	- -	5,092
C. Pitayensis - - -	- -	16	- - -	- -	- -	16
TOTAL - - -	2,945,592	1,016	166,000	330,000	22,000	3,464,608

TABLE showing the Growth of CHINCHONAS in the DARJEELING PLANTATIONS during the Six Months ending 31st March 1875.

NAMES.	Numbers.	Third Plantation (Rishap), Altitude 2,000 Feet.					Fourth Plantation (Ranghu), Altitude 3,332 Feet.					Fifth Plantation (Runghu), Altitude 2,556 Feet.				
		Date of Planting, 1867.	Height in Inches on 1st January 1868.	Height on 1st October 1874.	Height on 1st April 1875.	Growth during Six Months.	Date of Planting, 1864.	Height in Inches when Planted.	Height on 1st October 1874.	Height on 1st April 1875.	Growth during Six Months.	Date of Planting, 1864.	Height in Inches when Planted.	Height on 1st October 1874.	Height on 1st April 1875.	Growth during Six Months.
C. Succirubra -	1	29 March -	29	259	259	–	29 July -	5	336	339	3	15 October	6	352	360	8
Ditto - -	2	- ditto -	30	290	300	10	- ditto -	6	374	382	8	- ditto -	10½	244	244	–
Ditto - -	3	- ditto -	37	279	279	–	- ditto -	7½	288	288	–	29 July -	5½	264	264	–
Ditto - -	4	- ditto -	24	292	298	6	15 October	10½	342	342	–	- ditto -	3	247	247	–
Ditto - -	5	- ditto -	37	293	293	–	29 July -	4¾	302	312	10	- ditto -	5½	379	386	7
Ditto - -	6	- ditto -	30	309	309	–	- ditto -	4½	296	306	10	- ditto -	3	213	216	3
Ditto - -	7	- ditto -	27	216	216	–	- ditto -	3½	397	401	4	- ditto -	4	396	398	2
Ditto - -	8	- ditto -	30	276	284	8	- ditto -	2	338	350	12	- ditto -	4½	306	310	4
Ditto - -	9	- ditto -	29	192	192	–	- ditto -	3	333	344	11	- ditto -	4	304	306	2
Ditto - -	10	- ditto -	25	242	252	10	- ditto -	3	264	276	12	- ditto -	3	274	274	–
C. Micrantha -	1	16 March -	17	205	211	6	15 October	9	268	368	–	29 Juiy -	5½	226	228	2
Ditto - -	2	- ditto -	19	254	254	–	29 July -	6½	346	348	2	- ditto -	6	206	207	1
Ditto - -	3	- ditto -	44	244	246	2	- ditto -	3	284	284	–	15 October	6	328	334	6
Ditto - -	4	- ditto -	46½	240	241	1	- ditto -	2½	158	159	1	29 July -	4½	246	246	–
Ditto - -	5	- ditto -	45½	305	305	–	15 October	3	289	298	–	15 October	5½	322	324	2
C. Calisaya -	1	29 June -	25	288	288	–	1867: 29 June -	15½	164	164	–	1868: 1 January	2	179	181	2
Ditto - -	2	- ditto -	16	309	312	3	- ditto -	9¾	168	170	2	- ditto -	3½	255	260	5
Ditto - -	3	- ditto -	15	256	258	2	- ditto -	12¼	183	187	4	- ditto -	3¾	226	234	8
Ditto - -	4	- ditto -	16	266	266	–	- ditto -	10	234	234	–	- ditto -	3¼	186	186	–
Ditto - -	5	- ditto -	22	252	255	3	- ditto -	11½	240	240	–	- ditto -	1¾	227	236	9
Ditto - -	6	- ditto -	24	287	289	2	- ditto -	10½	168	168	–	- ditto -	4¼	182	182	–
Ditto - -	7	- ditto -	23	300	300	–	- ditto -	10½	210	220	10	- ditto -	4	239	243	4
Ditto - -	8	- ditto -	19	270	273	3	- ditto -	15¼	150	150	–	- ditto -	2¾	288	294	6
Ditto - -	9	- ditto -	21	213	215	2	- ditto -	14½	Dead	–	–	- ditto -	7	223	223	–
Ditto - -	10	- ditto -	21	266	267	1	- ditto -	16	180	192	12	- ditto -	3½	147	147	–

TABLE showing the Number and Distribution of CHINCHONA PLANTS in the Government Plantations at *Darjeeling*, on the 1st October 1874.

Names of Species of Chinchona.	Number in Permanent Plantation.	Number of Stock Plants for Propagations.	Number of Seedlings or Rooted Cuttings in Nursery Beds for Permanent Plantations.	Number of Rooted Plants in Cutting Beds.	Total Number of Plants, Cuttings, and Seedlings.
C. New Variety - - -	21,000	1,000	15,000	5,000	42,000
C. Succirubra - - - -	2,300,000	- - -	125,000	130,000	2,555,000
C. Calisaya - - - -	354,500	2,000	116,000	125,000	597,500
C. Micrantha - - - -	50,000	- - -	- - -	- -	50,000
C. Officinalis and Varieties -	125,000	- - -	- - -	- -	125,000
C. Pahudiana - - - -	5,092	- - -	- - -	- -	5,092
C. Pitayensis - - - -	- - -	16	- - -	- -	16
TOTAL - - -	2,855,592	3,016	256,000	260,000	3,374,608

TABLE showing the Growth of CHINCHONAS in the DARJEELING PLANTATIONS during the Six Months ending 1st October 1874.

NAMES.	Numbers.	Third Plantation (Rishap), Altitude 2,000 Feet.					Fourth Plantation (Runghu), Altitude 3,332 Feet.					Fifth Plantation (Runghu), Altitude 2,556 Feet.				
		Date of Planting, 1867.	Height in Inches on 1st January 1868.	Height on 1st April 1874.	Height on 1st October 1874.	Growth during Six Months.	Date of Planting, 1864.	Height in Inches when planted.	Height on 1st April 1874.	Height on 1st October 1874.	Growth during Six Months.	Date of Planting, 1864.	Height in Inches when planted.	Height on 1st April 1874.	Height on 1st October 1874.	Growth during Six Months.
C. Succirubra -	1	29 March -	29	259	259	–	29 July -	5	315	336	21	15 October	6	330	352	22
Ditto - -	2	- ditto -	30	270	290	20	- ditto -	6	358	374	16	- ditto -	10½	244	244	–
Ditto - -	3	- ditto -	37	257	379	22	- ditto -	7½	286	288	2	29 July -	5½	259	264	5
Ditto - -	4	- ditto -	24	278	292	14	15 October	10½	336	342	6	- ditto -	3	233	247	14
Ditto - -	5	- ditto -	37	280	293	13	29 July -	4¾	292	302	10	- ditto -	5½	372	379	7
Ditto - -	6	- ditto -	30	289	309	20	- ditto -	4½	270	296	26	- ditto -	3	202	213	11
Ditto - -	7	- ditto -	27	210	216	6	- ditto -	3½	384	397	13	- ditto -	4	386	396	10
Ditto - -	8	- ditto -	30	250	276	26	- ditto -	2	314	338	24	- ditto -	4½	290	306	16
Ditto - -	9	- ditto -	29	176	192	16	- ditto -	3	312	333	21	- ditto -	4	289	304	15
Ditto - -	10	- ditto -	25	239	242	3	- ditto -	3	232	264	32	- ditto -	3	274	274	–
C. Micrantha -	1	16 March -	17	199	205	6	15 October	9	266	268	2	29 July -	5½	219	226	7
Ditto - -	2	- ditto -	19	252	254	2	29 July -	6½	346	346	–	- ditto -	6	200	206	6
Ditto - -	3	- ditto -	44	235	244	9	- ditto -	3	255	284	29	15 October	6	315	328	13
Ditto - -	4	- ditto -	46½	230	240	10	- ditto -	2½	158	158	–	29 July	4½	228	246	18
Ditto - -	5	- ditto -	45½	288	305	17	15 October 1867:	3	281	289	8	15 October 1868.	5½	312	322	10
C. Calisaya -	1	29 June -	25	276	288	12	29 June	15¼	164	164	-	1 January -	2	179	179	–
Ditto - -	2	- ditto -	16	302	309	7	- ditto -	9¾	166	168	2	- ditto -	3½	237	255	18
Ditto - -	3	- ditto -	15	235	256	21	- ditto -	12½	183	183	–	- ditto -	3¾	224	226	2
Ditto - -	4	- ditto -	16	242	266	24	- ditto -	10	192	234	42	- ditto -	3¾	183	186	3
Ditto - -	5	- ditto -	22	252	252	–	- ditto -	11½	229	240	11	- ditto -	1¾	225	227	2
Ditto - -	6	- ditto -	24	283	287	4	- ditto -	10½	165	168	3	- ditto -	4½	182	182	–
Ditto - -	7	- ditto -	23	280	300	20	- ditto -	10½	199	210	11	- ditto -	4	226	239	13
Ditto - -	8	- ditto -	19	257	270	13	- ditto -	15¼	150	150	–	- ditto -	2¾	268	288	20
Ditto - -	9	- ditto -	21	213	213	–	- ditto -	14½	177	Dead	Top gone.	- ditto -	7	221	223	2
Ditto - -	10	- ditto -	21	266	266	–	- ditto -	16	218	180	–	- ditto -	3½	144	147	3

— No. 40. —

(No. 17—Agriculture.)

From the Government of India to the Secretary of State for India.

Simla, 23 August 1875.

IN continuation of our Despatch, No. 1, dated the 1st January last, we have the honour to forward, for your Lordship's information, a resolution by the Government of Bengal, dated the 27th July 1875, with copy of the Report therein referred to, dated the 24th May 1875, by Mr. Wood, the Government Quinologist, regarding the manufacture of a cheap febrifuge from the bark of *chinchona succirubra*.

2. We also forward a Report from the Surgeon General, Indian Medical Department, dated the 5th June 1875, No. 307, and its Enclosures, from which your

your Lordship will notice that the results of the experiments made with the mixed alkaloids prepared by Mr. Wood have been satisfactory.

3. We have directed that arrangements be made for giving the medicine an extensive trial throughout the Bengal Presidency, and also in Madras and Bombay, and shall inform your Lordship of the results of the further experiments in due course.

4. We have not yet received any report from the Indian Medical Department, in regard to the chinchonidine referred to in your Lordship's Despatch of the 4th May 1874, No. 33; it has been called for, and will be transmitted on receipt.

We have, &c.
(signed *Northbrook*, &c.

Enclosure 1, in No. 40.

RESOLUTION of the Government of *Bengal.*

Read, Calcutta, 27 July 1875.
Mr. Wood's Report on manufacturing chinchona products, dated 24th May 1875.

1. BEFORE entering on the review of this Report, it will be advantageous to reconsider the Papers regarding the cultivation of *C. succirubra*, or the red bark trees. In his Report for the year ending 31st March 1874, Dr. King made the following remarks as to the relative values of the *succirubra* and *calisaya*:—

> "The great preponderance of *succirubra* trees in the plantation is not due to a preponderance for that species over *calisaya*, but to the fact that the red bark tree is hardier, much more easily propagated, and has a much wider range as regards conditions of growth than *calisaya*. Artificial propagation of *calisaya* by cuttings proved very much more difficult than similar propagation of *succirubra*, and until two years ago (owing to the slowness of the *calisaya* trees to yield seed) we had to depend entirely on such means for multiplying it, whereas *succirubra* has been seeding freely for years. At last, however, we have raised a large supply of *calisaya* seed, and I trust before many months are over to be able to report half a million of plants in the nursery beds; and if the funds at my disposal be sufficient, a large proportion of these may be permanently planted out before the end of the current financial year. Red bark, although rich in its total yield of alkaloids, contains less quinine than yellow bark, and in a less easily extracted form. It is, therefore, less esteemed by manufacturers of quinine. Moreover, red bark can still be procured in considerable quantity from South America, while yellow bark, on the contrary, is scarce. The yellow bark tree promises to grow well in Sikkim; and now that Government have the means of extending its cultivation, I am strongly of opinion that they should do so."

2. On this report the Secretary of State* made the following remarks: "So much importance need not be attached to the cultivation of quinine-yielding species, if the species rich in chinchonidine is more suitable to the soil and climate of Sikkim; for the reports of the chinchona commissions are unanimous as to chinchonidine being equal to quinine as a febrifuge. If this view is confirmed by the medical officers whose duty it will be to watch and superintend the administration of the large quantity of chinchonidine which has lately been dispatched to India, this question may be considered to have been finally settled. The cheap form of the febrifuge manufactured at Rungbi will contain all the alkaloids formed in the bark; but as the *C. succirubra* trees are by far the most numerous, chinchonidine must always predominate. Hence, very considerable importance attaches to the results of the use of the latter alkaloid, 1,700 ounces of which have now been dispatched to Calcutta. I therefore desire that full reports may be called for on the efficacy of this form of the chinchona febrifuge, the successful use of which in India will so much increase the value of the Sikkim plantations."

3. Before this Despatch arrived and was communicated to Dr. King, the first Report of Mr. Wood, the Government Quinologist, had been considered, and orders passed on it. This Report showed that the *succirubra* trees seven years old, which were examined, yielded from 0·90 per cent. to 2·20 per cent. of quinine, and from 1·73 to 2·87 of chinchonidine; whilst the *calisaya* trees of five and seven years old yielded from 4·53 to 6·92 per cent. of quinine, and no chinchonidine. Mr. Wood was of opinion that, by selecting the best

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* Despatch of 5th November 1874. Communicated with Revenue, Agriculture, and Commerce Department, No. 2763, dated 9th December 1874.

best varieties of *calisaya*, there was a possibility of growing very rich bark, capable of easily furnishing pure sulphate of quinine; to which he added the following remarks: "On comparing the analyses of the barks thus far examined, it will be found that certain varieties of *calisaya* are decidedly superior to any of the *succirubra*. It is true that the total alkaloid in the latter species is as much, or even a fraction per cent. more than in the former; but in the one case the total is made up of a mixture in nearly equal proportions of different alkaloids, while in the other it consists almost entirely of quinine. For the manufacture of alkaloid in this country, a great advantage would be gained by the employment of a bark-yielding quinine to the exclusion of the other alkaloids, because the product would be more readily obtained in a pure and well-defined condition. Operating upon *succirubra* bark, the total yield must either be issued as a mixture of alkaloids in no very definite proportions, or methods of separation must be resorted to which will necessarily complicate the process. In addition to this, *succirubra* bark presents peculiar obstacles to the extraction of the alkaloids in a state of purity, which is not the case with *calisaya*."

4. On this Report Dr. King recommended, and this Government sanctioned his recommendation, that all further planting of the *succirubra* species should cease. Dr. King has now reported, in his annual report on the chinchona plantation for 1874–75, that the experiments with *calisaya* seed have proved a failure. As far as the Secretary of State's Despatch is concerned, the final decision of the question of the species which it is most advantageous to cultivate depends upon the reports which he called for from the medical officers on the 1,700 ounces of chinchonidine which he sent to India.

5. No report has been received by Government upon this point, and accordingly the Surgeon General will now be asked to report specially on the chinchonidine received from the Secretary of State, and also on any febrifuge sent to him by the Quinologist for trial.

6. The Government Quinologist now reports the results of his further inquiries and experiments for maturing the details of a process for the manufacture of a cheap febrifuge from the bark of *C. succirubra*. He calculates that each tree will yield 2¼ lbs. of dry stem bark, and that if these trees were regularly cut at the completion of their seventh year, there would be an average of 328,000 trees to cut, furnishing 738,000 lbs. of dry bark annually. To be on the safe side, however, in his calculations, he takes the number of trees at 2,000,000; and allowing them to attain eight years before cutting, he would obtain 244,000 trees every year. Assuming that they only furnished an average of 1½ lb. each, the yield would be 366,000 lbs. of dry bark per annum. He further calculates that the cost of producing the 366,000 lbs. of bark is 80,000 rupees, or 3½ annas per lb., and that the bark will yield 4 per cent. of total alkaloid. Mr. Wood has been informed that the legitimate requirements of Bengal for quinine amount to from 12,000 to 16,000 lbs. per annum, whilst the chinchona plantations at their present limit will only yield from 10,000 to 12,000 lbs. a year of the total alkaloid in its precipitated form, of the efficacy of which Mr. Wood understands both Dr. Chevers and Dr. Ewart are fully satisfied, and are quite prepared to recommend its adoption in all Government hospitals and dispensaries. This should not, however, be left as a matter of speculation, but should be definitely ascertained; otherwise the calculations may be materially vitiated. A report has been called for on the subject in the resolution of this date on the annual report of chinchona cultivation. Mr. Wood gave up the spirit process for the manufacture on account of the heavy expenditure of capital involved and the cost of spirit, and confined his attention to the process involving the use of acid and alkali. By this method he estimates the results of the full working power of the plantations as below:—

	Rs.	*a.*	*p.*
Dry bark 366,000 lbs., at 3½ annas - - -	80,000	–	–
Chemicals, carriage, and labour - - - - -	35,455	–	–
Quinologist - - - - - - - - -	10,000	–	–
Interest on capital for Quinologist's establishment - -	1,200	–	–
TOTAL - - -	1,26,655	–	–
Produce (2¼ per cent.) 8,235 lbs. at *Rs.* 15. 7. - -	1,27,127	8	–

He adds that, if such a simple method were observed, the exclusive services of a professional chemist would scarcely be required; and further, that "if the cultivation of chinchona and production of alkaloid be regarded as one operation, then Government, by simply extending existing appliances, will be in a position to supply the dispensaries with large quantities of an efficient febrifuge at a rupee an ounce, after covering every expense, and paying interest at 4 per cent. on all the capital sunk on chinchona in Sikkim from the commencement down to the present time."

7. His experiments in Calcutta for exhausting the finely-powdered bark with acidulated water by the aid of steam heat proved entirely successful, and he obtained an average of 3½ per

3½ per cent. of product from the bark, which showed by analysis 4 per cent. of total alkaloid. The best computation he can make as to the financial results of this process is,—

	Rs.	*a.*	*p.*
Bark 366,000 lbs., at 3½ annas per pound - - -	80,000	–	–
Working expenses - - - - - - - -	68,000	–	–
TOTAL - -	1,48,000	–	–
Produce 12,810 lb. (3½ per cent). at *Rs.* 11. 9. per pound -	1,48,115	–	–

8. The 68,000 rupees includes carriage of bark to Calcutta, chemicals, fuel, rent, Quinologist, labour (with European foreman), repairs and interest on machinery. The adoption of this measure would enable Government to produce febrifuge at a cost price of about 12 annas the ounce. He therefore recommends that a factory should be fitted up in Calcutta upon a moderate scale for working on this plan. The appliances in Sikkim he would still maintain in full operation, to work up the inferior bark from the branches, the richer bark alone being transmitted to Calcutta.

9. These proposals commend themselves to the Lieutenant Governor as deserving of consideration; but the final acceptance of them must manifestly depend on the reports which may be received from the Medical Department upon the value of the febrifuge which it is intended to produce by the process which Mr. Wood proposes to adopt.

10. At the same time, the Lieutenant Governor would make the following remarks for the particular attention of the Quinological Department under the Government of Bengal.

11. Mr. Wood has virtually recommended that the bark available from the Sikkim chinchona plantations should be used solely for the production of what he has termed "chinchona alkaloid," and it is further proposed to issue this new compound authoratively to the medical instutions of Government as a febrifuge in lieu of quinine.

12. No doubt the proposals would be very good if sufficient medical testimony of the value of the new compound, namely chinchona alkaloid, were forthcoming, but as such is not the case, it would appear to be inadvisable to issue, under the authoritative stamp of the Government, and for the treatment of the most prevalent disease of the country, a drug of which the medical officers have had as yet no experience, and which is, as far as the great majority of practitioners are concerned, an untried remedy.

13. The remedy (chinchona alkaloid) may ultimately prove to be a good one, but probably medical authorities will at the outset be unwilling to consider it as an equivalent for quinine in any case involving anything like serious responsibility; and the result will be a call upon Government for the latter remedy, quinine, which would cause as great an expense as if no chinchona plantation in Sikkim existed.

14. Mr. Wood, in making his recommendation, appears to have been actuated by a commendable desire to obtain for Government a good financial return for the capital outlay on the Sikkim plantation; but, nevertheless, it might be premature to adopt his valuable suggestions in their entirety, and the better plan would be to consider them purely as experimental until sufficient medical testimony to the efficacy or otherwise of the new drug had been collected.

15. In the meantime, the Quinologist may be directed to continue to manufacture the "new drug" from a certain proportion of the *succirubra* barks available; but from the remainder, and from the *calisaya*, he might be asked to prepare the orthodox chinchona alkaloids, namely, chinchonidine, chinchonine, quinine, &c., which have been proved by experience to be specific in the treatment of Indian fevers.

ORDERED, that a copy of the Resolution, with copies of the Reports, be submitted to the Government of India in the Department of Revenue, Agriculture, and Commerce for information; that a copy with printed copies of the Report, be forwarded to the Superintendent of the Botanical Gardens for information and guidance, with reference to his letter, No. 11 Q, dated the 14th of June, and for communication to the Quinologist.

Also, that a copy be forwarded to the Surgeon General, Indian Medical Department, for information, with a request that he will be so good as to furnish the report called for in paragraph 4 of the Resolution.

By Order of the Lieutenant Governor of Bengal.

Enclosure 2, in No. 40.

REPORT from the Government Quinologist, Chinchona Plantations, *British Sikkim*, dated 24th May 1875.

I HAVE the honour to state, for the information of Government, that since the date of my last Report (5th August 1874), I have been engaged in maturing the details of a process for the manufacture of a cheap febrifuge from the bark of *C. succirubra*, and in collecting data for ascertaining the economical results to be obtained therefrom.

1. With a view of determining the scale upon which the manufacture should be conducted, experiments were in the first place undetaken to ascertain the amount of bark which the *succirubra* trees now in cultivation are capable of yielding. By Dr. King's sanction a number of trees of different ages were cut down, and the bark stripped from each tree separately weighed in the green state. In order that the trees taken should fairly represent an average of the whole, a certain proportion of rows in a large patch was selected for cutting. Thus in some cases all the trees in every third or every fifth row of the patch were cut down. Mr. Gammie has had the * marked, so that experiments may be subsequently made with the coppice shoots. The results are given in the following Table :—

* *Sic* in orig.

TABLE No. 1, showing Average Weight of Green Bark per Tree at different Ages.

	Number of Trees Cut.	Weight of Green Bark yielded, lb.		Weight of Green Bark per Tree, lb.	
		Peeled Bark.	Scraped Bark.	Peeled Bark.	Scraped Bark.
Trees planted in—					
1866 at Rungbee -	101	825	167	8·01	1·65
1866 at Rishap - -	389	3,350	591	8·61	1·52
1867 at Ditto - -	323	2,786	424	8·63	1·32
1868 at Balu Pani -	257	1,109	343	4·13	1·33
1868 at Spicer's Ridge	229	795	328	3·47	1·43
1869 at Rungbee Bridge	622	2,448	837	3·93	1·34
1870 at Rishap Dukan	141	463	220	3·28	1·56
1871 at West of Calisaya	100	140	49	1·40	0·49
1872 at Mongpoo Ridge	100	92	49	0·92	0·49
	2,262	12,012	3,007		

2. The foregoing Table shows the average weight of wet bark yielded per tree of each successive year's planting; but this average includes a very wide range. Thus, of the trees eight years' old, some yielded as much as 30 to 35 lbs. of wet peeled bark per tree, while others only furnished from 2 to 3 lbs. With a view of showing more exactly this variation of yield in trees of the same age, I have arranged the trees of each year into nine groups, according to the weight of bark obtained per tree. The following Table shows the per-centage results:—

TABLE No. 2, showing Per-centage of Trees yielding different Quantities of Bark.

	PER-CENTAGE OF TREES.								
	1866.	1866.	1867.	1868.	1868.	1869.	1870.	1871.	1872.
Peeled Bark (wet) per tree—									
From 0 to 1 lb. - -	–	–	4·95	16·73	24·45	21·86	16·31	62·0	90·0
„ 1½ to 3 „ - -	15·84	12·85	16·72	28·40	34·93	32·15	43·26	35·0	10·0
„ 3¼ to 5 „ - -	20·79	17·74	21·98	31·13	25·33	24·77	31·92	3·0	–
„ 5½ to 10 „ - -	40·60	41·90	28·48	19·07	13·54	17·68	7·80	–	–
„ 10½ to 15 „ - -	11·88	18·51	12·08	2·72	1·31	2·41	0·71	–	–
„ 15½ to 20 „ - -	5·94	5·65	8·98	1·56	·44	1·13	–	–	–
„ 20½ to 25 „ - -	2·97	0·32	4·95	·39	–	–	–	–	–
„ 25½ to 30 „ - -	·99	·77	·93	–	–	–	–	–	–
, 30½ to 35 „ - -	·99	·26	·93	–	–	–	–	–	–
	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

Thus,

Thus, taking the trees of 1866 (Rishap), it will be seen that 41·9 per cent. of them yield from 5½ to 10 lbs. of wet bark each, while 12·85 per cent. only yield 1½ to 3 lbs., and 2·32 per cent. furnishes from 20¼ to 25 lbs. each. It is probable that in every plantation of young trees there will be considerable disparity of growth observable; and when the plants are situated, as in this case, upon the steep and uneven ground of a hill side with * rocks and the † of a heavy rainfall, such disparity is likely to be increased, because some of the trees must almost of necessity be more favourably placed than others.

* *Sic* in orig.
† *Sic* in orig.

3. Table 1 shows the average yield of *wet bark*. As I have stated, the green bark peeled from each tree was separately weighed. The total quantity from the trees of each year was then dried as a whole, and the weight divided by the number of trees. The green scrapings from the young branches were weighed in mass at the conclusion of each day's cutting. These scrapings also include those portions of thick bark which, from adhesion to the stem, could not be removed by peeling. The results of the drying were as follows:—

TABLE No. 3.—Dry Bark per Tree.

	Peeled Bark 1.	Scraped Bark 2.
	lbs.	*lbs.*
1866	2·52	·41
1866	2·06	·38
1867	2·27	·33
1868 / 1868	1·05	·34
1869	1·01	·33
1870	·92	·39
1871	·34	·12
1872	·26	·12

The numbers in Column 1 are experimental, those in Column 2 are calculated from the wet bark, taking the loss which scrapings undergo in drying at 75 per cent. I should state here that Mr. Gammie has given me his assistance throughout these experiments, and one of his assistants superintended the cutting of the trees, &c.

4. From the data thus collected, it is possible to form an estimate of the amount of *succirubra* bark which these plantations are capable of furnishing. Table 3 shows that our trees of seven or eight years' growth will yield upon an average a trifle over 2 lbs. of dry stem-bark per tree, in addition to about five ounces of scrapings from the small branches. The latter item should properly be somewhat increased, because trees of this age have already furnished a certain amount of branch-bark by pruning. There is no means of exactly estimating the amount thus yielded, but it probably does not exceed two or three ounces per tree. If we assume that the total branch-bark obtainable amounts altogether to eight ounces, and that this quantity is equal to four ounces of stem-bark, we obtain 2¼ lbs. as the entire yield per tree. The total number of *succirubra* trees planted from the commencement down to the end of 1874 is 2,300,000. If these trees were regularly cut at the completion of their seventh year, there would be an average of 328,000 trees to cut, furnishing 738,000 lbs. of dry bark annually. But it may not be safe to reckon upon the total number of trees planted. Moreover, those planted in recent years may not attain such development as those planted in 1867; it will, therefore, be wiser to take a lower average per tree than 2¼ lbs. Reckoning the number of trees in stock at 2,000,000, and allowing them to attain eight years before cutting, there would be 244,000 trees available every year; and assuming that they only furnished an average of 1½ lbs. each, we should then have 366,000 lbs. of dry bark per annum to dispose of. It will probably be considered that this estimate is rather below than above what may fairly be expected.

5. The total amount of money expended upon these plantations up to the end of 1873–74 is 5,49,740 rupees, exclusive of interest. Adding on compound interest at the rate of 4 per cent., it will be found that the entire capital sunk up to the present time amounts in round numbers to 7,50,000 rupees. The yearly interest on this sum is 30,000 rupees, and taking the working expenses at 50,000 rupees (which has been the actual expenditure for some years past), it results that the cost price of the 366,000 lbs. of bark is 80,000 rupees, or 3½ annas per pound. It is obvious that an allowance of 50,000 rupees per annum would suffice for raising fresh plants on new ground to replace those cut; but the method of coppicing would render this unnecessary, and it is probable, therefore, that the existing stock of plants could be maintained at a less cost than I have taken. But for the

present purpose, it is desirable to make such allowances as will show the minimum quantity of bark and the maximum cost that may reasonably be anticipated.

6. The next point for consideration is the alkaloidal value of the bark. Wishing, in the first place, to ascertain the maximum quality to which our *succirubra* attains, and having already examined bark taken from trees growing at different elevations, I requested Mr. Gammie to obtain for me samples from the stems of our finest trees of different ages. He therefore furnished me with seven samples.

The results of analysis were as follows:—

	Total Alkaloid.
No. 1, trees planted in 1866	6·7 per cent.
„ 2 „ „ „ 1867	7·3 „
„ 3 „ „ „ 1868	6·8 „
„ 4 „ „ „ 1869	6·61 „
„ 5 „ „ „ 1870	6·63 „
„ 6 „ „ „ 1871	6·04 „
„ 7 „ „ „ 1872	7·68 „

The constituents of the total alkaloid from the eldest and youngest of these were determined:—

	No. 1. (1866.)	No. 6. (1871.)	No. 7. (1872.)
Total alkaloid	6·7	6·04	7·68
	2·4	2·73	2·17
Chinchonidine	1·9	1·99	2·95
Chinchonine	2·4	1·31	2·56
	1·3	1·35	·82

The peeled bark from the trees cut for experiments, described in Tables 1 and 2, was also analysed with the following results:—

	Total Alkaloid.
1866	4·37 per cent.
1867	5·10 „
1868	4·85 „
1869	4·32 „
1870	4·85 „
1871	4·80 „
1872	4·23 „

In each case the whole weight of bark, as recorded in Table 1, after drying, was coarsely bruised and thoroughly mixed; a large sample was then taken from the mass and finely powdered for analysis. It must be remembered that in these and all other analyses, the bark operated on is previously dried at a temperature of 100°, C. Dry bark rapidly absorbs from 10 to 12 per cent. of moisture from the air, and in judging the value of our bark for manufacturing purposes from the analysis, an allowance should be made for this. Portions of the dry scrapings from the different years were mixed together, and the bulk analysed. It yielded 2·4 per cent of total alkaloid. The bark of 1867 planting appears to be somewhat richer than that of other years. Some scrapings from the young branches of these trees were therefore tested separately; they yielded 3·06 per cent.

7. It appears from the foregoing results, that while strips of bark taken from our good trees yield from 6 to 7 per cent. of total alkaloid, the bulk of bark obtained by cutting down the trees and peeling them only yields from 4 to 5 per cent. This may be due to the fact that, in the latter case, the weaker trees are included as well as the strong ones; but I am inclined to think that it is also, at any rate in part, attributable to a gradual diminution in the per-centage of alkaloid as we ascend the tree; that the proportion of alkaloid in the bark at the lower portion of the stem is greater than it is in bark from the higher portions. At present this is not much more than conjecture based on very few facts, but I propose submitting it to investigation shortly. It is evident that the age of the *succirubra* tree up to seven or eight years, has very little effect upon the proportion of total alkaloid contained in the bark. In all the samples examined there is a remarkable uniformity observable. The composition of the alkaloid, moreover, is not subject to any great variation. These undoubtedly are very important and valuable features in the *succirubra* species as a source of chief febrifuge.

8. From all the foregoing facts, it results that we may reasonably expect these plantations

tions in a short time to yield 366,000 lbs. of *succirubra* bark per annum, at a cost of 3½ annas per pound, and containing an average of 4 per cent. of total alkaloid.

9. It remains to consider the form of febrifuge which should be adopted, and the most economical process for extracting it. In August last, I forwarded to the Surgeon General 5 lbs. of the total alkaloid in its precipitated form, and a month later I sent a further quantity of 25 lbs. Portions of this preparation were, I believe, issued to the principal hospitals in Calcutta for trial; and I understand both Dr. Chevers and Dr. Ewart are fully satisfied of its efficacy, and are quite prepared to recommend its adoption in all Government hospitals and dispensaries. But Dr. Ewart especially impressed upon me the great importance of maintaining uniformity of composition in the preparation. This, I am well aware, is a thing which the medical profession regard as most essential in all medicinal agents, and that to promote excellence in this respect has been the principal aim of modern pharmacy. In my report of August 5th, I stated as a chief reason for preferring the precipitated form of *succirubra* alkaloid to any crystalline compound, that greater uniformity of composition could be attained. Many experiments have convinced me of the difficulty of obtaining a crystallised salt from the mixed alkaloid that would not be subject to wide variations. On the other hand, if *succirubra* bark alone is allowed to enter the factory, care being taken by mixing to render this as uniform as possible, and if the product is allowed to accumulate until a large bulk can be adjusted by analysis, I am confident that the medical profession will have no reason to complain of any variation in the precipitated alkaloid. Of course without these precautions, and especially if the bark of different species were indiscriminately worked, much uncertainty would result. But the alkaloids in *succirubra* bark bear a pretty constant relation to each other. Differences are observable between individual trees; but taking the average over the whole plantation, the proportions are very regular, and a systematic method of cultivation, combined with judicious organisation in the factory, will suffice to secure the desired uniformity. The "chinchona febrifuge" (this name would seem to be the least exceptionable of any yet proposed) will be issued in the form of a white, or nearly white, powder. It is a question whether or not the absence of crystalline appearance will tend to create a prejudice against it if sold in the bazaars as a substitute for quinine, but this should not apply to the Government dispensaries, and these institutions alone will probably consume all that can be produced for some time. I am told that the present issue of quinine to Bengal is 4,000 lbs. per annum, and I am assured that there is a legitimate requirement for three or four times this amount. From 10,000 to 12,000 lbs. a year will represent the maximum quantity of febrifuge that these plantations, at their present limit, will be likely to furnish.

10. In the August report, I adverted to two alternative processes for the manufacture of febrifuge. Both these have received further investigation. A trial of the spirit method with several forms of apparatus has been made; but looking at the large quantity of bark to be dealt with, it would involve a far heavier expenditure of capital for the necessary machinery and stock of spirit, than I should feel justified in recommending Government to incur. In starting a manufacture of this kind, which introduces a new product for consumption, the sinking of a large capital should, as it seems to me, be avoided as far as possible—at any rate, in the earlier stages. I therefore turned my attention to improving and modifying the alternative process involving the use of acid and alkali.

11. This method, in its simplest form, has been in operation here upon a small scale for several months, during which time over 300 lbs. of febrifuge have been produced by it. Since my return to Rungbee it has been extended, and is now in operation in some sheds at Mungpoo, under Mr. Gammie's superintendence, upon a scale sufficient to work 26 maunds of bark per week, or 110,000 lbs. per annum. There would be no difficulty in trebling this producing power, if necessary; an expenditure of 600 or 700 rupees would suffice for the purpose. But the existing scale will probably prove equal to the present supply of bark, and no advantage therefore would result from further extension for some months to come. Up to the present time 15,450 lbs. of dry bark have been worked by this plan, and the yield of febrifuge has been 2·17 per cent. But this includes all the bark consumed in experimental operations, and much also that was of very poor quality. In some recent results 2½ and 3 per cent. have been obtained, and I believe the method, upon an average, will furnish three-fourths of the alkaloid present in the bark. But taking as our basis what has been actually obtained upon a manufacturing scale, which, after a slight deduction for bark wasted in experiment, is 2·25 per cent., then the present appliances will furnish 2,500 lbs. of febrifuge a year. The following is an estimate of its cost, based upon past results, but not including anything for Quinologist:—

	Rs.	*a.*	*p.*
Dry bark 1,352 maunds, at 3½ annas per lb.	24,251	8	–
Chemicals (including carriage) and labour	10,656	–	–
	34,907	8	–
Produce (2¼ per cent.) = 2,494 lbs. at 16 rupees	39,904	–	–

By about trebling this scale of production, we arrive at the full working power of the plantations, and our estimate would then stand as follows:—

	Rs.	*a.*	*p.*
Dry bark 366,000 lbs., at 3½ annas per lb.	80,000	–	–
Chemicals, carriage and labour	35,455	–	–
Quinologist	10,000	–	–
Interest on capital for quinologist's establishment	1,200	–	–
	1,26,655	–	–
Produce (2¼ per cent.) 8,235 lbs., at *Rs.* 15. 7.	1,27,127	8	–

It will be observed that I have included quinologist's pay in the latter estimate. If so simple a method as the one under consideration, however, were adopted, the exclusive services of a professional chemist would scarcely be necessary. I believe, moreover, that in endeavouring to keep on the safe side, I have somewhat overrated the expenditure and under-estimated our producing power; consequently the cost price of the febrifuge would probably be rather less than that shown.

12. It results that if the cultivation of chinchona and production of alkaloid be regarded as one operation, then Government, by simply extending existing appliances, will be in a position to supply the dispensaries with large quantities of an efficient febrifuge at a rupee an ounce, after covering every expense and paying interest at 4 per cent. on all the capital sunk on chinchona in Sikkim from the commencement down to the present time. This I understand to be the principal object which Government has had in view.

13. Although the object can be thus accomplished, there is much room for improvement. The acid and alkali process in the simple way in which it is worked here does not make the most economical use of the bark. I have already stated that finding the spirit method involved such a heavy capital, my attention was turned to effecting some improvement in the acid process. While I was in Calcutta some apparatus was fitted up in the Presidency jail for exhausting the finely powdered bark with acidulated water by the aid of steam heat. The result was entirely successful. The model apparatus I had in use at the jail enabled me to work a maund of bark a day, and I obtained an average of 3½ per cent. of product from the bark, which showed by analysis 4 per cent. of total alkaloid. The chemicals used were the same, and in the same proportion as those employed here. The additional outlay involved therefore would be for fuel and machinery. It is difficult to estimate what this would amount to. The best computation I have been able to make shows the following:

	Rs.	*a.*	*p.*
Bark, 366,000 lbs., at 3½ annas per lb.	80,000	–	–
Working expenses	68,000	–	–
	1,48,000	–	–
Produce, 12,810 lbs. (3½ per cent.) at *Rs.* 11. 9. per lb.	1,48,115	–	–

The 68,000 rupees includes carriage of bark to Calcutta, chemicals, fuel, rent, quinologist, labour (with European foreman), repairs, and interest on machinery. If this estimate is within the * , then the adoption of this method will enable the Government to produce febrifuge at a cost price of about 12 annas the ounce. Even if the cost should prove to be more than I have computed it at, nevertheless I think considerable economy must result, and a much larger amount of product will be furnished by the total quantity of bark available.

* *Sic* in orig.

14. I would therefore recommend that a factory should be fitted up in Calcutta upon a moderate scale for working on this plan. The appliances existing here might be still maintained in full operation; there will always be a certain quantity of poor bark (from the branches) which could be advantageously worked on the plantations, the richer bark alone being transmitted to Calcutta.

15. It does not appear that there would be any advantage in attempting to bring the requisite machinery to Rungbee. The cost of carrying 300,000 lbs. of bark to Calcutta will be at the maximum 18,000 rupees; but the cost of bringing up the chemicals for working that quantity at Rungbee will be certainly 16,000 rupees, while the repairs of machinery and the outlay in starting will be very much less in Calcutta than it would be at Rungbee. In commencing a new thing of this kind, improvements and modifications in the will certainly suggest themselves as experience is gained. These can be readily and economically effected in Calcutta, while at Rungbee they would involve great delay and large expenditure. A great portion of the current expenses on the factory will be for acid, of which

which considerable quantities are consumed in the process. It will probably therefore be worth while to manufacture the acid required. This could be accomplished at Calcutta; but it would be a very difficult undertaking in so remote a place as Rungbee. The acid employed is muriatic, and it is obtained at present from Dr. Waldie's chemical works at a cost of three and a-half annas a pound in Calcutta. Its carriage to Rungbee, including bottles, packing cases, &c., brings up its cost to eight annas per pound.

16. It will be observed that I have abandoned the idea of working green bark. After several trials upon a large as well as a small scale, I have satisfied myself that it presents no advantages whatever; on the contrary it interposes some obstacles, and certainly interferes to a material extent with the efficient organisation of a factory. The drying of the bark involves but a very trifling cost. It is far better, therefore, to have the bark collected at the most convenient seasons only, and stored. The manufacture can thus be conducted upon a uniform system all the year round.

17. Should the Government be pleased to approve of starting a factory in Calcutta, as I have suggested, it would be desirable that I should be instructed to draw up an estimate of the expenditure required for machinery, &c.; and in this the assistance of Mr. Donaldson, Superintendent of Jail Manufactures, would be of great value. I would take this opportunity of expressing my thanks to Mr. Heeley and Dr. Mackenzie for the facilities they afforded me in carrying out my experiments in the jail workshops, and especially to Mr. Donaldson for the engineering help he afforded me in designing and constructing the apparatus required.

18. It is to be borne in mind that the estimate submitted in the foregoing paragraphs involve the necessity of working these *succirubra* planations to the extent of 366,000 lbs. of dry bark per annum. I have shown that this is well within their capabilities, but it may take another year before the maximum rate of production is attained. In view of such a development, it is desirable that the financial arrangements of the undertaking should be clearly defined and settled. I would therefore respectfully suggest that all the bark yielded by the plantations should be made over to the quinologist at its cost price. The quinologist, in his turn, should make over to the Medical Department all the febrifuge he produces, at whatever it costs. Upon this plan exact financial results will always be attainable, and the efficiency or otherwise of each branch of the undertaking can at any time be easily tested by Government. Any attempt at taking the commercial value of bark in the London market as a basis would, I submit, be unsatisfactory, because such rates are fluctuating and uncertain; but with the cost prices regularly recorded from year to year, a comparison with market value can be always made, and the full economical results readily ascertained.

Enclosure 3, in No. 40.

From Deputy Surgeon General, Presidency Circle, Indian Medical Department, to Officiating Secretary to the Government of India,

Fort William, 5 June 1875.

WITH reference to your letter, No. 575, of the 21st December 1874, I have the honour to state that in August and September of last year, Mr. Wood, Government Quinologist at Rungbee, forwarded 30 lbs. of mixed chinchona alkaloids which he had manufactured, and intimated that the substance consisted of a mixture in the precipitated form of all the alkaloids present in the succirubra bark, namely, quinine, chinchonidine, chinchonine, and amorphous alkaloid, and that the proportion of the alkaloids was on an average somewhat as per margin. He said that the alkaloid is more repellent of water than a crystalline salt would be. He added that if it was thought advisable to administer the drug in the form of acid solution, it would be found most convenient to make a strong liquor which could be kept.

Quinine	15·5
Chinchonidine	29·0
Chinchonine	33·5
Amorphous alkaloids	17·0
Colouring matter, &c.	5·0
	100·0

3. The substance was divided among the medical officers of the College, General, Mayo, and Howrah Hospitals, with a request that they would give it a trial and report the results. A quantity was also sent to Dr. French, at Burdwan, with a similar request. All the above medical officers have sent in their reports, and they are submitted* herewith in original for the information of Government.

4. Dr.

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* Letter No. 800, dated 20th January 1875, from Dr. Chevers, with a memorandum No. 5567, dated 21st idem, from the Deputy Surgeon General, Presidency Circle, and annexures.
Letter No. 61, dated 6th March 1875, from Dr. Ewart, with memorandum No. 6533, dated 12th idem, from ditto, and annexures.
Letter dated 23rd March 1875, from Dr. Cayley, with memorandum No. 6808, dated 23rd idem, from ditto.
Letter No. 50, dated 5th May 1875, from Dr. Bird, with memorandum No. 994, dated 8th idem, from ditto, and annexures.
Letter dated 3rd April 1875, from Dr. French, with memorandum No. 67, dated 5th idem, from ditto, and annexures.

4. Dr. Chevers submits a table embodying 12 selected cases in which the alkaloid was used, and concludes his report in the following terms:—

"The result of my trial appears to be that the chinchona alkaloid is a very useful antiperiodic, but, as might be expected from its composition, somewhat less powerful than pure quinine. I would rate the strength of quinine as being about one-fourth greater than that of the alkaloid.

"I observed all the cases most carefully. I noticed nothing unpleasant, or in any way to be objected to in the operation of the alkaloid. I invariably gave it in solution. The taste appears to be nearly that of quinine."

5. Dr. Ewart records the results of his experience as follows:—

"I think after careful trial there is good reason for believing that the mixed alkaloid which has been furnished by Mr. Wood, Government Quinologist at Rungbee, is an excellent antiperiodic. The preparation is an elegant one, and so soluble that it can always be given in a convenient quantity in solution. It is tolerated with considerable ease by the stomach, becomes rapidly absorbed, and when given in large doses speedily produces all the symptoms of chinchonism. Unlike its representative in Madras, its composition as given at the commencement of this report can, I am informed by Mr. Wood, always be guaranteed with certainty. I have done my best, in conversation with Mr. Wood, to impress upon him the absolute necessity of his always being able to provide a drug of a standard composition, and I am glad to find that he is fully alive to the necessity of affording such a guarantee to the medical profession in India. With such a guarantee I am confident that the demand for the mixed alkaloid in India will for a long time to come far exceed the supply.

"The best time to be seized for its administration in intermittent fever is during some part of the sweating stage. Failing this, ten-grain doses three times a day during the intermission answers admirably in a large proportion of cases. I shall endeavour to introduce it into the practice of the General Hospital, both among the in and out door patients, as I feel convinced that a preponderating majority of cases of malarious fever will be found to be perfectly manageable under the treatment with the mixed chinchona alkaloid."

6. Dr. Cayley tried the alkaloid in four selected cases, and expresses himself as follows:—

"The two first of these cases show very little. In case 2, a mild intermittent, the remedy seemed to check the fever after two days.

"In the third case the alkaloid did not prevent a return of the fever.

"In the fourth case neither the mixed alkaloid nor did small doses (three grains) of quinine altogether prevent the paroxysm of fever, but this patient certainly improved under the treatment, and the fits of fever became much milder.

"I have in several cases where one or two doses of the mixed alkaloid have been given noticed that it has caused nausea, vomiting, and uneasiness of the stomach. I have given the medicine both in powder and in solution with acid.

"I am aware that the above cases are too few and too imperfect to afford more than the vaguest surmise as to the value of the remedy, but it appears to me to have some value as a tonic and antiperiodic."

7. Dr. Bird gives an interesting account of the action of the alkaloid, and arrives at the following conclusion:—

"The drug is not so easily borne by the stomach as is quinine: it cannot therefore altogether take the place of quinine. In the cure of cases of ordinary fever and ague its virtue is equal or nearly equal to that of quinine. In the cure of cases of suppressed fever it is superior to quinine, and judging from a limited experience I am inclined to say it is superior to any drug known to me. It is to be feared that its disagreeable action on the stomach excludes it from the list of useful tonics. The experiment was made on four cases of remittent fever, 27 of intermittent fever, four of suppressed intermittent fever, and four of hemicrania; and these were mostly all of a typical character."

8. Dr. French forwards an abstract of 21 cases treated in the Burdwan, and other hospitals, and states as follows:—

"The reports on these cases show clearly that the alkaloid is an antiperiodic; that in most cases it is a very good substitute for quinine, and that in some cases it acts just as well and nearly as quickly as that remedy.

"On the whole, I believe the mixed alkaloid to be a very useful medicine and an excellent substitute for quinine. I recommend that it be further tried next fever season under Dr. Joubert's eye in the severe cases of malarious fever in the hospitals in Burdwan."

9. There is, I think, sufficient evidence to show that the drug may be brought into general use. It is believed that Mr. Wood will be able to furnish a large supply this year.

Enclosure 4, in No. 40.

CASES of QUOTIDIAN INTERMITTENT FEVER treated by Chinchona Alkaloid and by Disulphate of Quina.

—	Age.	Sex.	OCCUPATION.	Number of Attacks before Admission.	Number of Attacks after Admission.	No. of Grains of the Alkaloid used to establish Normal Temperature.	Highest Temperature.
1	34	Male.	File-maker	5	3	83 grains	105° F.
2	35	„	Gardener	4	1	46 „	104·2° F.
3	22	„	Blacksmith	3	1	19 „	103° F.
4	40	„	Reader in the High Court	4	5	117 „	104° F.
5	30	„	Wrestler	3	1	19 „	102° F.
6	24	„	Constable	6	2	30 „	100·8° F.
7	9	„	None	5	2	21 „	104·8° F.
8	23	„	Student	5	3	42 „	103·9° F.
9	25	„	Mate	7	3	48 „	101·6° F.
10	23	„	Student	11	3	56 „	102·2° F.
11	24	„	Clerk	3	4	72 „	104° F.
12	20	„	Engineer	2	1	30 „	103° F.
13	23	„	Servant	3	1	30 „	106° F.
14	47	„	Engineer	1	2	41 „	105° F.
15	30	„	Clerk	3	2	31 „	101·2° F.
16	43	„	Driver	3	2	34 „	101·4° F.
17	25	„	Durwan	5	2	41 „	103° F.
18	61	„	Preacher	4	2	42 „	102·2° F.

Norman Chevers, M.D.,
Principal, Medical College.

REPORT by Surgeon Major *Norman Chevers*, M.D.

It is a rule strictly observed in hospital that none but severe cases of paludal fevers are admitted to my wards. It is however self-evident that a new remedy cannot be subjected to a perfectly convincing test in such cases as these, as its failure might fairly be attributed to the presence of organic complications which too often resist the action of quina itself. Consequently I determined to try the alkaloid in none but simple uncomplicated cases of intermittent fever.

It may be mentioned here that the whole of the 18 cases embodied in this report were those of patients suffering from *quotidian* intermittent fever.

I explained my intention to Dr. McConnell, the resident physician, who devoted great care to the selection of simple cases in his out-patient room.

As the type of fever is constantly on the change, I was anxious to try the experiment in cases which were as nearly as possible identical in type. I succeeded in doing this to my satisfaction, the 18 cases fairly representing the autumnal intermittent of September and December 1874.

They were all marked cases of fever, the highest thermometrical reading ranging from 101·2° to 106° F.

Both the alkaloid and quina were tried in several cases which have not been tabulated on account of the existence of splenic enlargement, bowel complaint, or some other complication.

The table embodies 12 cases in which the alkaloid was used, against six in which quina was employed.

My practice in intermittents has, for many years, been to give quina to adult males in full doses of six grains before and after every paroxysm, and in half doses of three grains throughout the interval.

Having no data by which to judge the strength of the alkaloid, I made seven grains the full dose and four grains the half dose. These doses of both drugs answering well, I continued them throughout the trial. In a young patient, nine years old, I gave the alkaloid in due proportion.

It was arranged from the first that the course of treatment in the whole of the 18 cases should be as nearly as possible exactly the same. Castor oil was used as the aperient, and liquor ammoniæ acitatis as the chief ingredient of the fever mixture. A very large experience in the treatment of quotidians and tertians in Bengal has convinced me that *when treatment is commenced immediately*, certain fixed doses of quina are almost invariably sufficient to prevent the occurrence of a second paroxysm. The operation admits of almost as great precision as does the loading of a gun. Thirty grains are sufficient in a European male adult, 25 in a European woman or in a native man, 20 in a native woman.

In hospital practice, however, we cannot begin to treat our cases immediately; and in proportion to the loss of time are generally the severity of the disease and the uncertainty in the action of the remedy. It will be observed that in what I may term the "alkaloid cases" there had been from two to 11 paroxysms before treatment was commenced; and that in the "quina cases" treatment had been preceded by from one to five paroxysms.

An intermittent fever may be said to be arrested immediately the natural temperature of the body becomes permanently re-established. In the 12 *alkaloid cases* the number of grains which had to be taken before the natural temperature was re-established were 19 (boy of nine), 19 (adult male), 21, 30, 30, 42, 46, 48, 56, 72, 83, and 117.

In the six *quina cases* the numbers of grains required to produce the same effect were 30, 31, 34, 41, 41, and 42. Hence the average quantities needful were, of the alkaloid,* a fraction less than 45 grains, of quina, a fraction more than 36 grains.

[The result of my trial appears to be that the chinchona alkaloid is a very useful antiperiodic, but, as might be expected from its composition, somewhat less powerful than pure quina. I would rate the strength of quina as being about one-fourth greater than that of the alkaloid.

I observed all the cases most carefully. I noticed nothing unpleasant or in any way to be objected to in the operation of the alkaloid. I invariably gave it in solution. The taste appears to be nearly that of quinine.]

Enclosure 5, in No. 40.

REPORT by Surgeon Major *J. Ewart*, M.D., Surgeon Superintendent, Presidency General Hospital, on the mixed Chinchona Alkaloids supplied by the Government Quinologist at Rungbee, through the Principal Medical Storekeeper to Government (an Extract from the Annual Report of the Presidency General Hospital for the year 1874).

ABOUT the middle of September 20 ounces of chinchona alkaloid obtained from the Government Quinologist at Rungbee, near Darjeeling, were forwarded to me by the Surgeon General, with a request that a careful trial of it in malarious fevers should be made at the General Hospital and the result reported for the information of Government.

The substance consisted of a mixture in the precipitated form of all the alkaloids present in the succirubra bark. The proportions of these are, according to Mr. Wood, as follows:—

Quinine	15·5
Chinchonidine	29·0
Chinchonine	33·
Amorphous alkaloid	17·0
Colouring matter	5·0
TOTAL	100·0

Thus, this mixed preparation is of known composition and is chiefly constituted of three alkaloids, the antiperiodic powers of which have already been more or less authoritatively determined.

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* In this calculation I omit the case of the boy and also that of the man who took 117 grains, his bein evidently one of rather exceptional severity. Consequently 10 alkaloid cases are placed in comparison with 6 quina cases.

determined. On the receipt of the mixed alkaloid it was resolved to adopt the solution recommended by Mr. Wood:—

R. Alkaloid	2 oz.
Acid. Sulph. dil. (B P)	2 fl. oz.
Water to make	20 fl. oz.

To be divided into 32 doses, giving half a drachm of the alkaloid for each dose for an adult. It was also arranged that in all cases where there might be any uncertainty as to the nature of the fever in which the alkaloid was to be tried, the antiperiodic treatment was to be postponed until the diagnosis could be made free from fallacy or error. Prior to this having been accomplished the same preliminary measures were adopted, wherever they were indicated as necessary, as are frequently employed to pave the way for the administration of quinine. Among these may be mentioned the exhibition of mild aperients, refrigerents, &c., with light and easily-digestible articles of food. When in this manner the system had been prepared for the speediest possible absorption of the drug and the diagnosis had been accurately pronounced, full doses of the mixed alkaloid in solution were given during or near the termination of the sweating stage of intermittents when practicable, or where this period had passed, during the intermission, to forestall and prevent a recurrence of the paroxysm. It may further be premised that the utmost care was taken never to have the mixed alkaloid administered in any case where quinine or any other antiperiodic remedy had been previously used; so that it might be shown conclusively whether the results obtained were fairly attributable to the powers of the mixed alkaloid, and no other drug.

[I think, after careful trial,* there is good reason for believing that the mixed alkaloid which has been furnished by Mr. Wood, Government Quinologist at Rungbee, is an excellent antiperiodic. The preparation is an elegant one, and so soluble that it can always be given in a convenient quantity in solution. It is tolerated with considerable ease by the stomach, becomes rapidly absorbed, and when given in large doses speedily produces all the symptoms of chinchonism. Unlike its representative in Madras, its composition, as given at the commencement of this report, can, I am informed by Mr. Wood, always be guaranteed with certainty. I have done my best, in conversation with Mr. Wood, to impress upon him the absolute necessity of his always being able to provide a drug of a standard composition, and I am glad to find that he is fully alive to the necessity of affording such a guarantee to the medical profession in India. With such a guarantee, I am confident that the demand for the mixed alkaloid in India will for a long time to come far exceed the supply.] In half-drachm doses the mixed alkaloid is an efficient and safe antiperiodic, and only, in my opinion, second to quinine. The best time to be seized for its administration, in intermittent fever, is during some part of the sweating stage. Failing this 10-grain doses three times a day during the intermission answer admirably in a large proportion of cases. In 5-grain doses, three times a day, it forms a good bitter tonic; sharpening the appetite, improving the digestion, and expediting the completion of intestinal digestion and the primary process of assimilation. [I shall endeavour to introduce it into the practice of the General Hospital, both among the in and out door patients, as I feel convinced that a preponderating majority of cases of malarious fever will be found to be perfectly manageable under treatment with the mixed chinchona alkaloid.]

Enclosure 6, in No. 40.

From Surgeon Superintendent, Mayo Native Hospital, to Deputy Surgeon General, Presidency Circle.

Calcutta, 23 March 1875.

WITH reference to your No. 6683, dated 17th of March, and previous communication, on the subject of the use of mixed chinchona alkaloids from Rungbee, in cases of fever, I have the honour to report as follows:—

Cases of malarious intermittent and remittent fevers, which are so prevalent in many parts of India, are certainly not common in Calcutta. I allude to the class of fevers which are undoubtedly checked by a few doses of quinine or similar febrifuge or antiperiodic, and which, if not so arrested, are liable to run on for some time. In most of the cases of fever among the *out*-patients in Calcutta hospitals the disease lasts for a few days, more or less, and leaves of itself under very simple treatment; and with this class of patients one sees so little of the result of the treatment, that it would be only misleading to pronounce any opinion as to the value of any particular drug.

Among

* *Vide* cases in Annual Report.

Among the *in*-patients, again, there are few cases of uncomplicated fever, except fever of a continued type, which certainly cannot be cut short by quinine, and which of course would not be suitable for testing the value of the mixed alkaloids.

In most of the cases of intermittent and remittent fevers that have lately been in hospital I have been trying the effects of Ribton's febrifuge, regarding which I hope to send a report shortly.

In the following four cases the mixed alkaloid was given:—

CASE 1. A Hindoo, aged 25, was admitted, 10th January, with quotidian fever of 10 days' duration. He had suffered from many attacks during the previous six months, and his spleen was enlarged. After five days of simple treatment the fever left; he was then given 30 grains of the mixed alkaloid three times a day, and his average temperature went down to below 98° F.; he remained in hospital for three days longer, and had no return of fever, and certainly improved in general condition, though the enlargement of the spleen remained.

CASE 2. A Hindoo, aged 16, admitted, 17th January, with fever of two days' duration, was given a purgative. On the 18th he had no fever, and was then given 30 grains of mixed alkaloid twice; in the evening he had a slight return of fever; on the 19th he had no fever, the alkaloid was repeated; on the 20th he had no fever, and left hospital.

CASE 3. A Mahomedan, aged 40, admitted, 5th January; had intermittent fever and enlarged spleen for four months. He was anæmic; had ædema of the feet. He was first given small doses of quinine and iron; after five days the fever stopped, and his temperature became quite normal. On the 13th he was still without fever, the temperature never rising above 99°: he was then given 30 grains of the alkaloid three times a day. He was free from fever and improved in health till the 20th, when the fever returned and continued for three days, after which he had a profuse perspiration, and his pulse fell to 48 beats. The fever again ceased and did not return. He left hospital on the 26th, in improved health and free from fever.

CASE 4. A Hindoo, aged 23, admitted 4th February; had intermittent fever at intervals for six months; describes the fever as coming every fourth day; spleen enlarged. On the 6th had an attack of high fever, temperature 103°; came on with shivering. 7th February: no fever; given 30 grains of alkaloid thrice daily. The alkaloid made him vomit. February 8th: no fever; the alkaloid again caused vomiting and giddiness, and the dose was reduced to 15 grains. 13th February: return of fever, which lasted only through one afternoon and night. 15th February: very slight fever, temperature 99·6°. 16th February: was now given small doses of quinine and iron. 17th February: return of fever, temperature 100·5°. 18th February: slight fever; on the next two days there was no fever. 21st February: slight fever. After this he remained three days in hospital, and had no return of fever.

[The two first of these cases show very little. In Case 2, a mild intermittent; the remedy seemed to check the fever after two days.

In the 3rd case the alkaloid did not prevent a return of the fever.

In the 4th case neither the mixed alkaloid nor did small doses (three grains) of quinine altogether prevent the paroxysm of fever, but this patient certainly improved under the treatment, and the fits of fever became much milder.

I have in several cases, where one or two doses of the mixed alkaloid have been given, noticed that it has caused nausea, vomiting, and uneasiness of the stomach. I have given the medicine both in powder and in solution with acid.

I am aware that the above cases are too few and too imperfect to afford more than the vaguest surmise as to the value of the remedy, but it appears to me to have some value as a tonic and antiperiodic.]

Enclosure 7, in No. 40.

From Civil Surgeon, Howrah Hospital, to Deputy Surgeon General, Presidency Circle.

Howrah, 5 May 1875.

No. 3436A, dated 5th September 1874.
No. 6369A, dated 11th January 1875.
No. 7110, dated 15th February 1875, from Secretary to the Surgeon General.

HEREWITH I have the honour to submit my report on the action and virtues of the chinchona alkaloid in the treatment of disease in accordance with instructions conveyed in the documents noted in the margin.

This second report may also be considered meagre, but I have endeavoured to state what I believe to be the case and no more. The conduct of an experiment of this nature is one of very great difficulty, at least I have found it so. On the one hand it is not always easy to get typical cases of the disease in the cure of which the drug is to be tried, and on the other the data are very frequently rendered imperfect by the patient withdrawing himself from treatment before a cure has been effected, or the contrary. Should the Surgeon General see fit I shall be glad to test still further the value of the drug in the cure of suppressed fever, but to enable me to do so it will be necessary that I should be furnished with a fresh supply of the alkaloid.

Report by Dr. *R. Bird*, M.D., Civil Surgeon, Howrah Hospital, on the Mixed Chinchona Alkaloid.

THIS remedy has been successfully used by me in the cure of intermittent and remittent fevers.

INTERMITTENT FEVER.—In the ordinary fever and ague, five grains of the alkaloid administered thrice daily during the intermissions, has, in most instances in my hands, proved sufficient to break the disease and restore the patient.

SUPPRESSED INTERMITTENT FEVER.—This condition is very common here in Bengal, and it apparently differs from the ordinary type of the disease in not coming to the surface. There may be a sense of cold about the spine for a little, but there is no ague; and the daily increase in the temperature is perceptible about the back and belly rather than on the extremities and head, and is often so slight that if not specially looked for it may escape observation altogether. The patient is listless and irritable for an hour or two daily, but at other times he seems fairly well. His relatives cannot say he is sick; yet they admit he is not well, and he daily grows weaker and thinner, until it is suddenly discovered that the spleen and liver are enlarged, and the blood much wanting in red corpuscles. Quinine, as a rule, fails to check the return of the febrile symptoms or to alleviate the general sickness. It is not so, however, with the chinchona alkaloid. In two cases of this condition where quinine, arsenic, chinchona, and even Warburgh's fever tincture had failed to exercise a beneficial influence, I achieved a cure through the administration of the chinchona alkaloid. Further experience of the drug will probably show that in the cure of this most intractable disease, it is the most powerful remedy we at present possess.

REMITTENT FEVER.—In the management of this disease I have found the drug useful in lengthening the remissions, and I also think in lowering the temperature. But to bring about these results it is necessary to give the remedy in large doses, in doses say of 30 to 40 grains, and these induce such grave nervous symptoms that the physician is scarcely warranted in administering them while he has at hand remedies which are more efficacious in a pleasanter way.

HEMICRANIA.—In the cure or alleviation of this disease the drug, in my hands, has proved almost valueless, and in efficacy infinitely inferior to bromide of potassium.

PHYSIOLOGICAL ACTION.—In most instances the drug at first causes nausea, occasionally ending in vomiting and vertigo. These symptoms are produced by doses of five to seven grains. When doses of 30 or 40 grains are administered, the heart's action is slowed and weakened; the temperature of the skin is lowered. Even in remittent fever perspiration is promoted, and semi-stupor is induced.

CONCLUSION.—The drug is not so easily borne by the stomach as is quinine. It cannot therefore altogether take the place of quinine. In the cure of cases of ordinary fever and ague, its virtue is equal, or nearly equal, to that of quinine. In the cure of cases of suppressed fever it is superior to quinine, and judging from a limited experience, I am inclined to say it is superior to any drug known to me. It is to be feared that its disagreeable action on the stomach excludes it from the list of useful tonics. The experiment was made on four cases of remittent fever, 27 of intermittent fever, four of suppressed intermittent fever, and four of hemicrania; and these were mostly all of a typical character.

From *Baboo Denobundoo Dutt*, Inspecting Medical Officer, Burdwan Circle, to the Civil Surgeon, Burdwan; dated Burdwan, 22nd March 1875.

WITH reference to your memorandum, No. 234 E, of the 15th March, I have the honour to inform you that chinchona alkaloid was issued to three of the dispensaries under my inspection as noted in the margin. The report from Jooblay has not as yet come to hand, but as the report on the result of the use of chinchona alkaloid is urgently required, I beg leave to submit it without the same.

1. Kanchunagur.
2. Tikurhaut.
3. Jooblay.

2. It appears from the experiments made by the native doctors of Kanchunagur and Tikurhaut, that the result has not proved favourable.

3. The native doctor of Kanchunagur tried the remedy in 80 cases of intermittent fever after the administration of purgatives and diaphoretics; in five mild cases only, anything like a cure was affected. In all of them giddiness of head, nausea, sleeplessness, and in some cases vomiting had occurred in consequence of large doses of the medicine having been administered.

4. The native doctor of Tikurhaut treated 115 cases of ague (simple and complicated) with the above medicine in 15-grain doses; in 35 of them the result arrived at was satisfactory, but relapses occurred in most of the cases soon after the fever had been checked by the use of the alkaloid. He also noticed the same symptoms in the patients treated by him.

5. The report from the assistant surgeon of Jooblay will be submitted as soon as it is received.

From *Baboo Jodoonath Bhuttacharji*, Native Doctor, Tikurhaut, to the Civil Surgeon, Burdwan.

I HAVE the honour to inform you that 35 patients are getting chinchona alkaloid who were suffering from fever (intermittent) namely, 14 quotidian, 4 tertian, and 17 fever quartan; of whom nine are perfectly cured; 12 do not attend the dispensary; rest are relieved. It requires larger quantity than sulphate of quinine; many of them complain of giddiness of the head.

From *Baboo Jodoonath Bhuttacharji*, Native Doctor, Tikurhaut, to Civil Surgeon, Burdwan; dated 13th February 1875.

I HAVE the honour to inform you that I prescribed many patients with chinchona alkaloid; most of them complain of giddiness of the head, and some of them are not getting any benefit from it. In the last report those who were cured soon relapsed. I have found that its results are not so satisfactory as quinine.

From *Baboo G. C. Roy*, M.D., Inspecting Medical Officer, Jehanabad Circle, to the Civil Surgeon, Burdwan; dated Burdwan, 22nd February 1875.

WITH reference to your memorandum, No. 17 E, I have the honour to submit to you the report of the action of the chinchona alkaloid as has been tested by the assistant surgeons of Jamalpore and Akloky respectively in my circle. According to my instructions, individual records of cases were kept, and the medicine was given to those only on whom its effects could be ascertained. Hence the number that have been put to the test are too few for scientific generalisation, yet sufficient, I believe, for practical purposes to credit the drug with curative virtue. Thus assistant surgeon Nobin Chunder Ghose, of Jamalpore, furnishes me with 20 cases to whom from 5 grains to 8 grains were given, according to age, in one single dose, before the expected paroxysm. In nine it failed to check the fever; in seven it succeeded; and in four it was successful after the second dose. The medicine was administered in the form of powder, and the unpleasant symptoms he found were nausea, vomiting, and vertigo in three instances only, in two of which they were noticed after eight and ten grains doses respectively.

Assistant Surgeon Sooresh Chunder Ghose tried it in quotidian and quartan type of fever, and in 28 instances he obtained the following result: Fever checked, 17; failed, 11. Of the successful cases three required a second dose next morning to check the recurrence of the attack. In the first 10 cases, treated with 8-grains dose, his success was more assuring, inasmuch as there were eight recoveries to two failures; but the list of unsuccessful cases was swollen in the subsequent trial when the dose was reduced to 5 grains, when as many succeeded as failed. The unpleasant symptoms he describes are loss of appetite, a feeling of weakness, headache, vertigo, nausea, vomiting, and in one case purging. Vomiting, when it is set up, is more distressing than the rest, and in 12 cases out of 28 either one or both symptoms were present, viz., vertigo, and nausea, or vomiting. Unlike the effect of chinchonism, it is a symptom least to be desired, because eight of those did not benefit by the treatment in whom the chinchonism was observed, and the fever recurred as usual. Even 5 grains in four instances produced the unpleasant effect of gastric irritation. To sum up then, out of 48 cases 28 succeeded and 20 failed to check fever in single doses, varying from 5 grains to 8 grains as anteperiodic given before the expected attack. Its power of checking fever is much inferior to quinine and uncertain. In fact, in most cases quinine succeeds when it proves injurious. In some constitutions it acts deleteriously, and even 5 grains is a troublesome dose to some individual idiosyncracy. If larger strength requires to be given, it would be advisable to give in divided doses instead of in one lump. Gastric and nervous irritation destroys its efficacy, and these are the symptoms rather to be avoided than sought for in its use.

From *Baboo Nobin Chunder Ghose*, Assistant Surgeon in Chief, Jamalpore Dispensary, to the Civil Surgeon of Burdwan; dated 11th February 1875.

IN submitting the report as to the efficacy of the chinchona alkaloid, I have the honour to state that I have tried it in solution and powder in many cases of intermittent fevers, and I have found it useful in checking all varieties of intermittent fever, although its powder is inferior to that of quin. sulph. Although on the first day it generally produces no marked effect, on the second day fever is much reduced, and on the third it is perfectly checked. In some adult cases I have seen 10-grains dose given two or three hours before the paroxysm perfectly checked the fever. Up to 10-grains dose it has been tried, but no bad symptoms are complained of by the patients, except slight nausea and occasionally slight headache and giddiness. Amongst 152 cases, in one patient it produced vomiting immediately after the medicine was taken, but it is doubtful whether it was owing to the effect of the alkaloid or not. Properly speaking in no case I have as yet seen it to produce gastro-intestinal irritation.

In cases of fever with enlarged spleen, its power of reducing the spleen is not yet noticed.

From Dr. *J. G. French*, M.D., F.R.C.S., late Civil Surgeon of Burdwan, to the Deputy Surgeon General, Presidency Circle; dated Presidency General Hospital, 3rd April 1874.

As I received yesterday from Dr. C. H. Joubert, Civil Surgeon of Burdwan, the police hospital case-book, and the accompanying reports from medical officers in his district, on the efficacy as an antiperiodic of the Darjeeling chinchona or mixed alkaloid, I have the honour to submit for the information of the Surgeon General my report on its effects in those cases in which I tried the drug before I gave over charge on the 28th February last.

Owing to some mistake or oversight the medicine did not reach me until the beginning of January, at a time when the fever season was coming to an end, and admissions from severe malarious fever were rarely met with. Some of the drug I brought to the police hospital in order to try it under my own eye. The remainder I divided out amongst the most active and intelligent of my assistant surgeons and native doctors with the object of having it carefully tested. I expected them to keep a register of the cases so treated and then to report on it. This they did not do; they distributed broadcast, took for granted what the people told them, and then sent in a report. Although I forward these reports, I consider them to be totally worthless and unreliable,* and they are in opposition to my experience of the effects of the alkaloid.

* Except that of the Assistant Surgeon of Jamalpore.

In order to make my report full and clear, I beg to forward abstracts of the 21 cases which were treated in the Burdwan police hospital, and where the observations were daily entered. The reports on these cases show clearly that the alkaloid is an antiperiodic, that in most cases it is a very good substitute for quinine, and that in some cases it acts just as well and nearly as quickly as that remedy. If attention be first paid to the state of the bowels, no gastric irritation follows its administration in small or ordinary doses. In continued or large doses, it produces head symptoms like quinine. The chief of these is giddiness. In mild or ordinary cases the dose ought to be about 5 grains every two or three hours during intermission. For severe cases doses of 10 or 15 grains every third or fourth hour act best.

Of the 21 cases, seven were mild quotidian ague, four were ordinary quotidian ague, three cases were doubtful, but most probably fevers of malarious origin; two were chronic quotidians, one was chronic quartan, one mild quartan, one mild tertian, one was obstinate chronic quartan, and one was obstinate quotidian ague. In two cases, there was enlargement of the spleen.

Allowing for a few days' convalescence in hospital after the last attack, one case was under treatment for 21 days, one for 14 days, one for 11 days, and the remainder for periods varying from three to nine days. Taking the 21 cases, the average number of days in hospital was only 6·57, or about the same time during which cases remain when treated by quinine. In no case had the drug to be discontinued and quinine substituted, and in all it effected a cure; in some cases very quickly, and in others after repeated doses.

On the whole I believe the mixed alkaloid to be a very useful medicine and an excellent substitute for quinine. I recommend that it be further tried next fever season under Dr. Joubert's eye in the severe cases of malarious fever in the hospitals in Burdwan.

FEVER CASES.—Treated by Chinchona Alkaloid in Burdwan, by Dr. *J. G. French*, M.D., F.R.C.S., late Civil Surgeon, Burdwan, from 21st January to 25th March 1875.

No. 1.—* *, aged 28 years, police constable, was admitted into hospital on 21st January for intermittent fever which daily came on for the previous five days. The last attack was in December 1874; the ague generally commenced at 12 o'clock noon, and the sweating stage terminated at about 6 o'clock p.m.; the bowels were confined. Ordered pulv. jalapæ co.

22nd. Bowels well opened; no fever yesterday. To get chinchonæ 5 grains thrice daily.
23rd. Had fever yesterday from 12 o'clock noon to 6 o'clock p.m.; continued chinchonæ every third hour.
24th. Had no fever yesterday.
25th. No fever.
27th. Had no fever since 22nd; discharged.

Remarks.—This was a mild case of intermittent fever—at first quotidian and then tertian. After admission into hospital had fever for one day only.

No. 2.—* *, aged 23, police constable, admitted into hospital on 27th January for intermittent fever which attacked him on two previous days. The last attack was in

August 1874; on the 26th the ague commenced at 6 o'clock p.m., and the sweating stage terminated at 2 o'clock a.m.; bowels open. Ordered chinchonæ 5 grains thrice daily.

28th. No fever yesterday; continue medicine.
29th. Fever lasted yesterday from 8 o'clock a.m. to 8 o'clock p.m.
30th. Had fever yesterday evening from 7 to 10 o'clock p.m.
31st. Had fever yesterday from 6 to 9 o'clock p.m.
1st February. No fever yesterday; continue medicine.
2nd. Had fever yesterday from 12 o'clock noon to 3 o'clock p.m.
4th. No fever since since 1st; discharged cured.

Remarks.—This was a well-marked case of ague, and the chinchonæ had clearly an anti-periodic effect.

No. 3.—* * , aged 34, police constable, was admitted into hospital on 30th January with ague which attacked him three days previously. It generally came on at 1 o'clock p.m., and the sweating stage left him at about 4 o'clock p.m.; bowels confined. Ordered pulv. jalapæ co. one drachm.

31st. Bowels were well opened; fever came on yesterday at 1 o'clock p.m., and left him at 3 o'clock p.m. Ordered chinchonæ 5 grains thrice daily.
1st February. No fever yesterday; continue.
3rd. No fever since 30th; discharged.

Remarks.—This was not a well-marked case; he had fever on the day of admission only.

No. 4.—* * , aged 28, police constable, was admitted into the police hospital on 30th January for ague which he has had daily for the past 12 days. The last attack was in October 1874; the ague generally came on at 10 o'clock p.m., and left him at 1 o'clock a.m.; bowels confined. Ordered pulv. jalapæ co. one drachm.

31st. Fever as usual yesterday evening. Ordered chinchonæ 5 grains thrice daily.
1st February. Fever as usual last night, which lasted from 11 o'clock p.m. to 1 o'clock a.m.; continue.
2nd. No fever yesterday.
3rd. Discharged cured.

Remarks.—This was a mild attack of well-marked ague. The chinchona had clearly an antiperiodic effect.

No. 5.—* * , aged 24, police constable, was admitted into the hospital on 1st February with ague of four days' duration. The last attack was in September 1874; the ague generally came on at 5 o'clock p.m. and left him at 4 o'clock a.m.; bowels confined. Ordered pulv. jalapæ co. one drachm.

2nd. Bowels well opened; no fever yesterday. To have 5 grains of chinchona thrice daily.
4th. No fever since admission; discharged.

Remarks.—This is a doubtful case.

No. 6.—* * , aged 30, police constable, was admitted into hospital on 3rd February for quartan ague of three months' duration. The last attack was in July 1874; generally the fever comes on at about 2 o'clock p.m. and disappears at about 4 o'clock a.m.; the spleen is enlarged and bowels are open. Ordered chinchonæ 5 grains every fourth hour.

4th. No fever yesterday; continue.
5th. No fever yesterday; continue.
6th. Ague came on yesterday at 1 o'clock p.m. and lasted until 5 a.m. Chinchonæ 10 grains every fourth hour.
7th. No fever yesterday.
8th. No fever yesterday.
9th. Had his usual attack yesterday from 2 o'clock p.m. to 4 o'clock a.m.
10th. No fever yesterday.
11th. No fever yesterday; feels head giddy and a sensation as if he had drunk spirits.
12th. Had a milder attack of fever yesterday from 3 o'clock p.m. to 4 o'clock a.m.; complains of giddiness.
13th. No fever yesterday.
14th. No fever yesterday.
15th. No fever yesterday, although it was the day for an attack.
16th and 17th. No fever.
18th. Had slight fever yesterday evening from 6 o'clock p.m. to 9 o'clock p.m.
22nd. Has had no fever since 17th and is now well; discharged.

Remarks.—This was an obstinate case of chronic fever in which the chinchona acted very well.

No. 7.—

No. 7.—* * , aged 31 years, police constable, was admitted into hospital on 7th February with quartan ague of six days' duration. The fever generally lasts from 4 o'clock p.m. to 10 o'clock p.m.; the last attack was in December 1874; bowels not open. Ordered jalapæ co. one drachm; chinchonæ 5 grains every fourth hour.

8th. No fever yesterday; bowels well opened.
9th. No fever. Chinchonæ 10 grains every fourth hour.
10th. Had an attack of fever yesterday from 4 o'clock p.m. to 8 o'clock p.m.; continue medicine.
11th. No fever yesterday; feels noises in head and buzzing in the ears.
12th. No fever.
13th. No fever.
14th. Discharged.

Remarks.—This was a mild case of quartan ague. The man had only one attack in hospital after his admission, but still the chinchona had evidently a checking effect.

No. 8.—* * , aged 24 years, police constable, was admitted into hospital on 7th February with quotidian ague. Duration of attack was eight days, and the fever generally lasted from 8 o'clock p.m. to 12 o'clock a.m. Ordered chinchonæ 5 grains every third hour.

8th. Had an attack yesterday from 12 o'clock noon to 4 o'clock a.m.
9th. Had an attack yesterday of four hours' duration.
10th. No fever yesterday.
12th. Had no fever since night of 9th; discharged.

Remarks.—Here also chinchona acted as an antiperiodic.

No. 9.—* * , aged 34, police constable, was admitted into hospital on 18th February 1875 with quotidian ague of four days' duration. The attack generally lasts all night; the last illness from fever was in October 1874. Ordered chinchonæ 10 grains every fourth hour.

11th. Had fever yesterday from 2 o'clock p.m. until 1 o'clock a.m.; once vomited after taking the medicine, and feels as if intoxicated.
12th. No fever yesterday; feels giddiness of the head; continue medicine.
13th. No fever yesterday; no vomiting, and has now no giddiness of the head.
14th. Discharged cured.

Remarks.—In this case chinchona in doses of 10 grains appears to have acted as well as quinine. The giddiness passed off although he continued to take the medicine; so that I attribute the sensation not to the latter but to weakness.

No. 10.—* * , aged 30 years, police constable, was admitted into hospital on 17th February with ague of the tertian type from which he has been suffering for the past seven days. It generally commences at 1 o'clock p.m. and lasts until 3 o'clock a.m.; bowels confined; last attack was in November 1874. Ordered pulv. jalapæ co. one drachm.

18th. Bowels well opened; no fever yesterday. To have 10 grains of chinchona every fourth hour.
19th. Had slight fever yesterday from 1 o'clock p.m. to 4 o'clock p.m.; complains of giddiness.
20th. No fever yesterday; has still giddiness; continue medicine.
21st. No fever yesterday, although it was his day for the attack; is now well; discharged.

Remarks.—Here also chinchona acted well, although it appeared to produce giddiness.

No. 11.—* * , aged 21 years, a police constable, was admitted into hospital on 21st February 1875 with quotidian ague, which has generally come on at 12 o'clock a.m., and left him at 4 o'clock p.m. daily, for the past 12 days. The last attack was in January; bowels confined. Ordered pulv. jalapæ co. one drachm; chinchonæ 10 grains, every fourth hour.

22nd. Bowels well opened; continue medicine.
23rd. Had fever yesterday evening from 5 o'clock p.m. until 8 o'clock p.m.; complains of giddiness.
24th. Had fever yesterday evening from 9 o'clock p.m. until 12 o'clock a.m.; still complains of giddiness, but has had no vomiting or other bad symptom.
25th. No fever yesterday or last night.
26th. No fever; feels quite well; discharged.

Remarks.—Here also chinchona in 10-grain doses acted as well as quinine in checking the fever.

No. 12.—* * , aged 32 years, police constable, suffering from fever for one month, was admitted into hospital on 17th February for quotidian ague. Fever generally comes on at 6 o'clock p.m., and leaves him at 11 p.m.; the last attack was in August 1874; bowels not open. Ordered pulv. jalapæ co. one drachm and 10 grains of chinchona, every fourth hour.

18th. Had an attack yesterday evening from 6 o'clock to 11 o'clock p.m.; bowels well opened; continue medicine.
19th. Had fever yesterday from 4 o'clock p.m. to 10 o'clock p.m.; feels giddiness in the head; no vomiting.
20th. No fever yesterday; head still giddy.
21st. Had fever yesterday from 4 o'clock p.m. to 8 o'clock p.m.
22nd. No fever.
23rd. No fever since 20th; discharged.

Remarks.—This was a chronic case of ague; the antiperiodic effects of the chinchona were apparent in first converting the type into a tertian, and then stopping the attacks altogether.

No. 13.—* * , aged 28, police constable, suffering from quotidian ague for three days, was admitted into hospital on 19th February. Fever generally lasts from 12 o'clock a.m. to 5 o'clock p.m., or 17 hours out of the 24; the last attack was in January; bowels confined. Ordered haustus ol. ricini one ounce, chinchonæ 10 grains every fourth hour.

20th. Had fever yesterday from 11 o'clock a.m. to 4 o'clock a.m., or 17 hours; bowels have been well acted upon.
21st. Had fever yesterday from 11 o'clock a.m. to 3 o'clock a.m., or 16 hours; the spleen is enlarged; no giddiness and no vomiting; continue medicine.
22nd. No fever yesterday; feels well.
23rd. No fever since 20th; discharged.

Remarks.—This was rather a severe case of quotidian ague; chinchona acted just as well as quinine.

No. 14.—* * , aged 38, police constable, suffering from quotidian ague for the past three days, was admitted into hospital on 22nd February. Fever generally lasts from 2 o'clock p.m. to 9 o'clock p.m.; the last attack was in January 1875; bowels confined. Ordered pulv. jalapæ co. one drachm, chinchonæ 10 grains, every fourth hour.

23rd. Bowels well opened; had fever yesterday from 2 o'clock p.m. to 8 o'clock p.m.
24th. Had fever yesterday from 4 o'clock p.m. to 4 o'clock a.m.; complains of giddiness in the head; no vomiting.
25th. Had fever yesterday from 11 o'clock a.m. to 10 o'clock p.m.; complains of giddiness in the head; no vomiting or other bad symptom.
26th. Had fever yesterday from 7 o'clock p.m. to 3 a.m. this morning; bowels confined. Ordered one ounce of ol. ricini, and to continue chinchona in 15-grain doses.
27th. No fever yesterday; bowels well opened.
28th. No fever yesterday; feels the head giddy after taking the medicine; no other bad symptom.

[*Note.*—I may here state that on this afternoon I made over charge to Surgeon C. H. Joubert, so that my observations cease on this date. The subsequent progress of this case, and of the following six cases, are taken from the police hospital case book]:—

1st and 2nd March. No fever.
3rd. Had fever last evening from 7 o'clock p.m. to 12 o'clock a.m., or five hours.
4th. Had again fever last night for five hours; continue medicine.
5th, 6th, 7th, and 8th. No fever since 3rd; discharged.

Remarks.—This was a more obstinate case than any of the preceding ones, and although chinchona eventually cured the ague, it did not appear to have such power as in the other cases of ague.

No. 15.—* * , aged 29, police constable, suffering from ague for one day, was admitted into hospital on 23rd February. The last attack was in September 1874; on 22nd the fever came on at 7 o'clock p.m., and lasted up to the hour of his admission; bowels confined. Ordered one ounce of ol. ricini and diaphoretic mixture every two hours; to get 10 grains of chinchona every fourth hour during the intermission or remission.

24th. Fever still continues, and has not left him since his admission; continue diaphoretic mixture.
25th. The fever left him at 5 o'clock p.m. last evening; is much better this morning. To get his chinchona regularly to-day.

26th.

26th. No fever yesterday; had giddiness of the head after taking the medicine; no other bad symptom.
27th. No fever yesterday.
28th. 1st and 2nd March. No fever.
3rd. Had fever all night; it came on at 10 o'clock p.m.
6th. No fever since 2nd; discharged.

Remarks.—This is a doubtful case; but from the ague on the 2nd, I believe it was a remittent fever at first, which passed off in four days, remained away for five days, then appeared as ague on one day, and after that never returned. If this be the true diagnosis, chinchona powder must have had the effect of checking and then stopping the fever.

No. 16.—* * , aged 29 years, police constable, suffering from quotidian ague for previous 20 days, was admitted into hospital on 25th February. The last attack was in August 1874; the fever generally comes on at 4 o'clock p.m., and passes away at about 10 o'clock p.m.; bowels confined. Ordered one ounce of ol. ricini and 15 grains of chinchona at 3 o'clock p.m.

26th. Yesterday fever came on at 4 o'clock p.m., and left him at 9 o'clock p.m.; bowels well opened.
27th. No fever yesterday; got three doses of chinchona, 15 grains in each dose; continue same to-day.
2nd March. Had no fever since 25th; discharged.

Remarks.—This man had fever for 23 days, when the large doses of chinchona checked it altogether.

No. 17.—* * , aged 26 years, police constable, suffering from quartan ague for the previous two months, was admitted into hospital on 25th of February. The fever generally comes on every fourth day at 3 o'clock p.m., and leaves him at 8 o'clock p.m.; the three stages are well marked; bowels confined. Ordered one ounce of ol. ricini and 5 grains of chinchona at 4 o'clock p.m.

26th. Had no fever yesterday; bowels well opened. Ordered chinchona powder, 5 grains, every three or four hours.
27th. No fever; no giddiness; continue medicine.
28th. Had fever yesterday from 3 o'clock p.m. to 11 o'clock p.m.
1st March. No fever yesterday.
2nd, 3rd, 4th, 5th and 6th. No fever since 27th.

Remarks.—This was a chronic case of quartan ague; chinchona, in 5-grain doses, every fourth hour, cured it.

No. 18.—* * , aged 30 years, police constable, suffering from fever for the past four days, was admitted into hospital on 2nd February. The type was quotidian, and the fever generally came on at 5 o'clock p.m., and left him about 5 a.m., 12 hours; the last illness from fever was in January. Ordered chinchonæ, 5 grains, every third hour.

3rd. Had fever last evening from 4 o'clock p.m. to 7 o'clock p.m., three hours only.
5th. No fever since 2nd; discharged cured.

Remarks.—Chinchona alkaloid acted quickly in this case and stopped the attacks.

No. 19.—* * , aged 25 years, police constable, suffering from quotidian ague for the previous three months, was admitted into hospital on 21st March. The last illness from fever was in 1873; the fever generally comes on at 7 o'clock p.m., and leaves him at 1 o'clock a.m.; bowels confined. Ordered one ounce ol. ricini and camphor mixture one ounce, every three hours.

22nd. Bowels well opened; fever came on at 6 o'clock p.m., and left him at 3 o'clock a.m.
23rd. Yesterday fever came on at 8 o'clock p.m., and left him at 3 a.m.; continue camphor mixture.
24th. Had fever again last night from 8 o'clock p.m. to 2 o'clock a.m. Ordered chinchonæ, 5 grains, every three hours.
25th. No fever yesterday or last night.
26th. No fever; feels well; discharged.

Remarks.—In this case—a very chronic one—camphor mixture was prescribed in order to test the case as being one of malarious fever, and to see what effect it would have; daily the fever came on as before. Chinchona, in 5-grain doses, every three hours, then stopped it in one day.

No. 20.—* * , aged 29 years, police constable, suffering from ague for the previous three days, was admitted into hospital on 25th March. The fever generally came on at 7 o'clock p.m., and left him at 6 o'clock a.m.; three stages are well marked; the last illness from fever was in April 1874. Ordered chinchonæ, 5 grains, thrice daily.

26th. Had no fever yesterday.
27th. Fever yesterday came on at 4 o'clock p.m., and left him early this morning; had cold, hot, and sweating stages.
29th. No fever since the 26th; discharged.

Remarks.—This was a slight or mild case of quotidian ague.

No. 21.—* * , aged 24 years, police constable, suffering from quotidian intermittent fever for the previous two days, was admitted into hospital on 25th March. The attacks generally came on about 8 o'clock p.m., and left him about 6 o'clock a.m.; bowels confined; the last illness from fever was in March 1874. Ordered pulv. jalapæ co. one drachm, chinchonæ 5 grains, twice to-day.

26th. Bowels well opened; fever came on this morning at 12 o'clock, and lasted for four hours; continue chinchona alkaloid.
27th. Had fever yesterday evening from 8 o'clock until this morning; continue medicine.
28th. Had fever yesterday from 8 o'clock a.m. to 12 o'clock noon; increase chinchona dose to 10 grains.
31st. Has had no fever since 27th; discharged.

Remarks.—This was undoubtedly a case of ague, in which the chinchona alkaloid had an antiperiodic effect.

ARMY (EAST INDIA) (ARREARS OF PAY).

RETURN to an Address of the Honourable The House of Commons, dated 13 February 1877;—*for*,

"COPY of LETTER; dated, Deputy Adjutant General's Office, Royal Artillery, *Simla*, the 24th day of July 1876, addressed to the Officer Commanding the 18th Brigade, Royal Artillery, *Sheffield, England*, by desire of His Excellency the Commander in Chief in *India*, respecting ARREARS of PAY due to MAJORS of the ROYAL ARTILLERY by the GOVERNMENT of *India*, and of any COMMUNICATIONS addressed to the Deputy Adjutant General, Royal Artillery, Horse Guards, by Officers of the Royal Artillery quartered in *Great Britain* or *Ireland* in reference to such Letter, or similar Letter, addressed to Officers commanding other Brigades, Royal Artillery.

War Office,
20 February 1877.

GATHORNE HARDY.

His Excellency the Commander in Chief in *India* to the Officer Commanding the 18th Brigade, Royal Artillery, *Sheffield*.

Royal Artillery in India.—Pay and Allowances.

(No. 3733).

Deputy Adjutant General's Office, Royal Artillery,
Sir, Head Quarters, Simla, 24 July 1876.

I HAVE the honour, by desire of his Excellency the Commander in Chief in India, to inform you that intimation has been received from the Secretary of State for India, that the Petitions of the undermentioned Officers for the Indian Pay and Allowances of a Major of Royal Artillery, prior to the 1st April 1875, will be submitted to Parliament in due course:—

Major G. E. Worsley.
Major J. Ritchie.

I have, &c.
(signed) *A. H. Murray*, Lieut. Colonel, R.A.,
for Deputy Adjutant General, Royal Artillery, in India.

The Officer Commanding 18th Brigade, Royal Artillery,
Sheffield, England.

True copy; forwarded in compliance with telegram received this day.

(signed) *N. J. Nugent*, Lieut., R.A.,
Acting Adjutant, 18th Brigade, Royal Artillery.

Sheffield, 10 February 1877.

From Major *G. F. Worsley*, B. Battery, 18th Brigade, Royal Artillery, to the Officer Commanding 18th Brigade, Royal Artillery, Sheffield.

Claim for Arrears of Pay in India.

Sir, Coventry, 28 September 1876.

In continuation of my letter of the 25th instant, and with reference to previous correspondence respecting the arrears of pay due to me, I have the honour to annex copy of a letter which I have received from the Deputy Adjutant General, Royal Artillery, in India, and I shall feel obliged by an explanation of its purport, as I have not petitioned Parliament. I beg you will do me the favour to forward this request to the Deputy Adjutant General, Royal Artillery, Horse Guards.

I have, &c.
(signed) *G. F. Worsley*, Major, R.A.,
B. Battery, 18th Brigade, Royal Artillery.

Forwarded.

(signed) *C. J. McMahon*, Lieut. Colonel,
Commanding Royal Artillery, Coventry.

(No. 2797.)

Forwarded to Deputy Adjutant General, Royal Artillery, Horse Guards, War Office.

(signed) *W. H. R. Simpson*,
Lieut. Col., Commanding 18th Brigade.

Sheffield, 2 October 1876.

From Major *Sadleir*, 16th Brigade, Royal Artillery, to the Officer Commanding 16th Brigade, Royal Artillery.

Sir, Newcastle-on-Tyne, 30 January 1877.

With reference to my letter, No. $\frac{70}{76}$, dated 3rd June 1876, and reply thereto, $\frac{\text{R. A. in India.}}{\text{Pay and Allowances.}}$ No. 3735, from Deputy Adjutant General, Royal Artillery, in India, I have the honour to request I may be informed as to when my claim for *Rs.* 1,576. 5. 3., or 157 *l.* 12 *s.* 3 *d.* British currency, being pay and allowances prior to 1st April 1875, is likely to be adjusted.

I have, &c.
(signed) *R. Sadleir*, Major, R.A.,
Commanding "C" Battery,
16th Brigade, Royal Artillery.

Newcastle-on-Tyne, 31 January 1877.

Forwarded.

(signed) *W. Booth*, Lieut. Colonel,
Commanding 16th Brigade, Royal Artillery.

Horse Guards, War Office,
17 February 1877.

R. Radcliffe,
Deputy Adjutant General.

ARMY (EAST INDIA) (ARREARS OF PAY).

COPY of Correspondence respecting Arrears of Pay due to Majors of the Royal Artillery by the Government of India; &c.

(*Colonel Jervis.*)

Ordered, by The House of Commons, *to be Printed,*
2 *March* 1877.

Under 1 *oz.*

EAST INDIA (MARINE SURVEY

RETURN to an Address of the Honourable The House of Comm
dated 19 March 1877;—*for*,

"COPY of the GENERAL REPORT of the Operations of the MARINE SURVEY of INDIA, from the commencement in 1874 to the end of the Official Year 1875-6, made under the directions of Commander *A. Dundas Taylor*, Calcutta, 1876."

India Office,
21 March 1877.

GEORGE HAMILTON,
Under Secretary of State.

(*Sir John Hay.*)

rdered, by The House of Commons, *to be Printed*,
21 *March* 1877.

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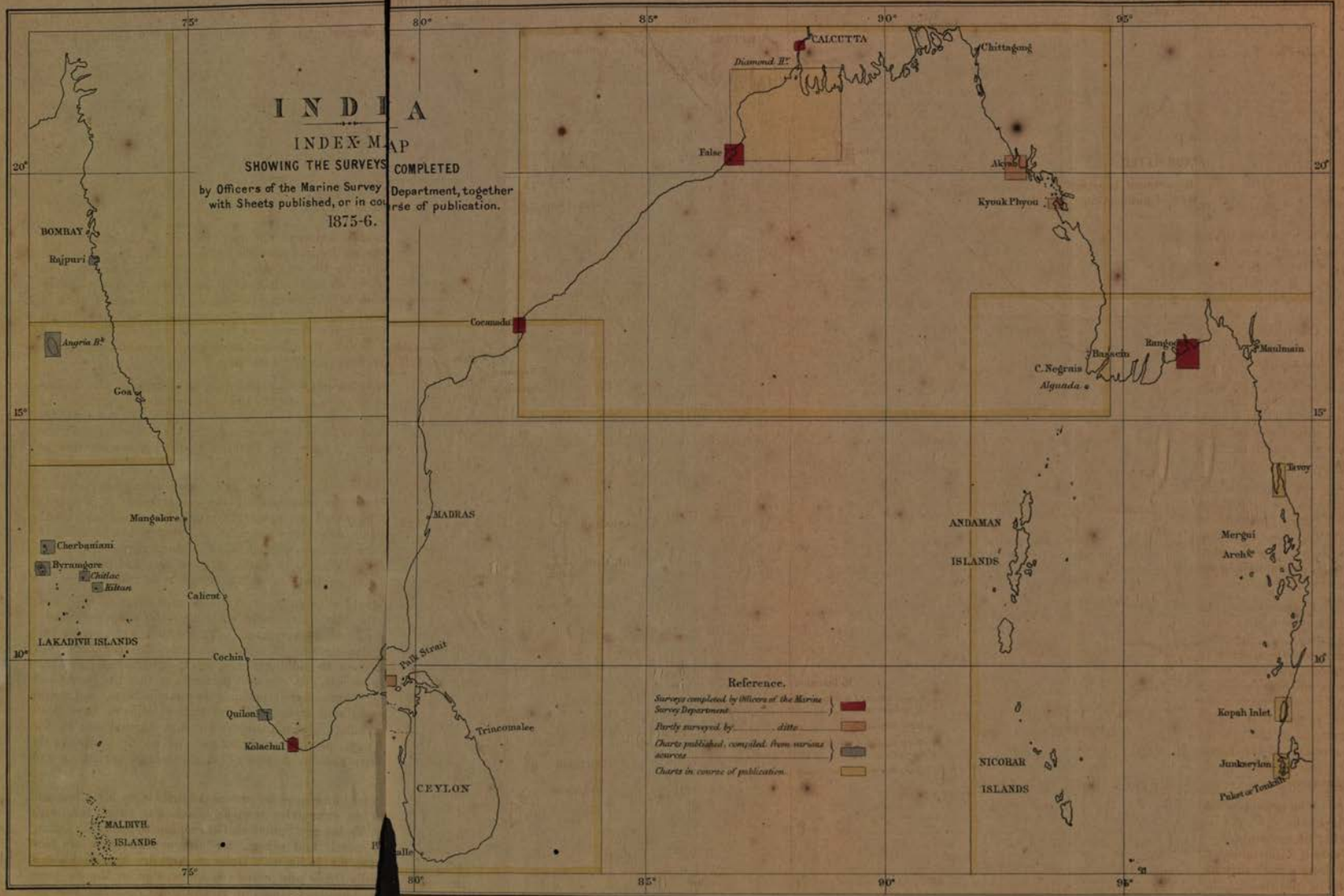
INDIA
INDEX MAP
SHOWING THE SURVEYS COMPLETED
by Officers of the Marine Survey Department, together with Sheets published, or in course of publication.
1875-6.
75°
80°
85°
90°
95°
20°
15°
10°
CALCUTTA
Diamond Hr.
Chittagong
False
Akyab
Kyouk Phyou
BOMBAY
Rajpuri
Angria Bk.
Goa
Cocanada
Bassein
Rangoon
Maulmain
C. Negrais
Alguada
Tavoy
Mangalore
MADRAS
ANDAMAN
ISLANDS
Mergui
Arch.
Cherbaniani
Byramgore
Chitlac
Kiltan
Calicut
LAKADIVH ISLANDS
Cochin
Palk Strait
Quilon
Kolachul
Trincomalee
CEYLON
NICOBAR
ISLANDS
Kopah Inlet
Junkseylon
Pulet or Tonkin
MALDIVH
ISLANDS
Reference.
Surveys completed by Officers of the Marine Survey Department
Partly surveyed by ditto
Charts published, compiled from various sources
Charts in course of publication

GENERAL REPORT on the Operations of the MARINE SURVEY of INDIA, from the commencement in 1874 to the end of the Official Year 1875-76.

SECTION I.

GENERAL REPORT.

As this is the first Annual Report of the operations of the Marine Survey Department; since the sanction for its formation was granted by Her Majesty's Secretary of State for India, on the representation of the Indian Government in 1874, it would, perhaps, be as well if, instead of confining my report solely to the actual surveys which have been executed, and the outturn of work in the Drawing Branch and Office, I should first place on record the steps which were taken towards organising the department from the commencement, and also the ultimate form it assumed, from both necessary and unavoidable changes which occurred during the first year of its working.

Attention drawn to the pressing necessity for new surveys in India.

1. In 1871, the necessity for improving the existing charts of the Indian coasts, and executing new surveys, owing to the increased development of the ocean and coasting trade of India, and the urgent call for exact knowledge regarding the capabilities of its harbours, became so pressing as to induce Parliament, as well as the public, to turn their attention to the lamentable state of Indian hydrography.

2. Since the abolition of the Indian Navy, and the transfer from the India Office to the Admiralty of all the materials for the construction of charts in 1861, up to the year 1871, a period of 10 years, little or nothing had been done, with the exception of certain desultory operations undertaken by the different local governments as the need arose, without any combined plan, with inadequate means, and in most cases the work was left in the hands of persons who were quite unacquainted with nautical surveying, except in its rudest form.

3. Extraordinary changes had taken place in the configuration of the coast, in many localities, since the surveys executed some 30 to 50 years previously. Lights, buoys, beacons, &c., had been erected. Ports which were of no importance then, and the examination of which consequently had been but cursory, had now become open to commerce, and yet the charts remained the same and were practically useless. It was also pointed out that the surveys of half a century, or more, ago were merely preliminary examinations, and could not, in the first instance, without steamboats and trained officers, have been executed in the precise manner in which surveys are now carried out by the Surveyors of the Royal Navy, the rigorous exactitude of which is absolutely necessary for the requirements of the present advanced state of navigation and commerce.

4. The urgent necessity for immediate action was pointed out by Mr. Clements Markham, C.B., F.R.S., in an exhaustive memoir, which was submitted, with other memoranda, by Mr. Trelawney Saunders, Geographer to the India Office, Captain Constable, I.N., myself and others, for the consideration of Her Majesty's Secretary of State for India, the Duke of Argyll. Mr. Markham's official position at the India Office and extensive knowledge of the subjects included under the general head of Geography, eminently qualified him for the task of reviewing the past and present state of Indian hydrography, and

giving valuable suggestions on the necessary steps to be taken to remedy existing evils.

5. In the early part of 1871, the Secretary of State, in a Despatch forwarding the above memoir, &c., brought this important subject to notice, and requested the earliest and serious attention of the Government of India, asking, at the same time, for opinions and suggestions as to the measures to be adopted for providing some efficient substitute for the establishments formerly maintained for the survey of the Indian seas.

6. The Government of India, before giving any decided answer, suggested that I should be sent out to India to assist in devising suitable measures to remedy the inconveniences pointed out. This proposal was approved of by Her Majesty's Secretary of State, and I arrived in Calcutta in December 1873.

7. Under the direction of the Government, I prepared a review of all existing charts, or materials for charts, in India or in England, of the coast from Pakchan Estuary to Sonmiani Bay, as also of the islands in the Bay of Bengal, the Laccadives and Maldives; also, a scheme to supplement and perfect existing charts, both by working up materials, not then utilised, and by new surveys, and fully detailing for each the method in, and the agency by, which it should be carried out, and its probable cost.

8. After full inquiry and consultation with the marine authorities, and others interested in the coasting trade and approaches to our coast and harbours, I submitted a report of the measures which, in my judgment, were required. This report was substantially adopted by the Government of India which accepted the responsibility of completing and maintaining the charts of the Indian coast, from Pakchan Estuary, at the southern extremity of Tenasserim, to Sonmiani Bay, on the western limits of the Sind coast, of the Andaman and Nicobar Islands, the Mergui Archipelago and the Laccadives.

9. Her Majesty's Secretary of State for India was thereupon asked for a special agency,—

1. To undertake accurate surveys of localities not yet sufficiently surveyed.

2. To work up the results of these surveys, and of other existing surveys, the materials of which have never yet been fully utilised.

3. To maintain the accuracy of our charts, by recording and bringing to notice all changes in the first instance of buoys, lights, and the like; and secondly, from time to time, of the natural configuration of the seaboard consequent on natural changes.

10. The proposals of the Government of India were very briefly as follows:—

That, with the view of executing gradually all the more pressing marine surveys and re-surveys, within the limits for which the Indian Government accepted the responsibility, a small survey flotilla should be organised with competent surveyors and efficiently manned, the whole cost of which, including a superintendent of marine surveys, should not exceed two lakhs of rupees per annum.

That, to supervise both the carrying on of the surveys afloat, the draughting of the charts for publication, to superintend the reproduction by photozincography, or their preparation for transmission to the hydrographer, to maintain a correct record of buoys, lights and the like, and publish the earliest information of changes in the position of these, a superintendent of marine surveys should be appointed.

Duties at Bombay and in England.

11. It was also proposed that I should return to England, *viâ* Bombay*, that I might be available to furnish the Secretary of State with any further details which might be necessary, in order to finally arrange for the manner in which the services of officers of the Royal Navy might be secured. During my stay at Bombay, I made it my duty to bring the question of missing original charts before many of the officers who had formerly served the local situations connected

* There I was detained nearly three weeks, being appointed member of a committee under the presidentship of Colonel Alexander Fraser, R.E., C.B., to report upon the hydraulic lift at Hog Island.

nected with the dockyard and the Observatory, where the Indian Navy Draughtsman's office was located. The result was that a great number of valuable documents were found at the time; a few of these I took to England and deposited at the India Office; amongst them were original maps of Mesopotamia, which Captain Felix Jones, I.N., found of use in the compilation of his new great map of Arabia. But after securing these, from information received at the storekeeper's office, I reported to the Government of India a contemplated wholesale destruction of some 3,000 old charts, because of their being dust-stained, torn and insect-eaten; my suggestion was (and fortunately it came in time to be carried out) that these charts should be sent to Calcutta to await my return. This proved a real treasure-trove; many invaluable original charts were preserved from destruction, and now are carefully stored at Calcutta and catalogued. Three or four originals, on a large scale, of portions of Captain Moresby's survey of the Red Sea were discovered, copies of which have been forwarded to the Hydrographer.

Sanction of Secretary of State.

12. The proposal of the Government of India for the resumption of Marine Surveys, together with the scheme submitted based on my report, preceded me to England, and was there sanctioned by Her Majesty's Secretary of State for India in Council, in a Despatch dated 16th July 1874, and I was appointed Superintendent of Marine Surveys on the 27th July of the same year.

Appointment of Admiralty Surveyors and Chief Civil Assistant.

13. In accordance with the scheme, the Lords Commissioners of the Admiralty were communicated with on the subject of appointing officers of the Surveying Branch of the Royal Navy to fill the superior posts in this department under the Government of India. The proposals met with the approval of their Lordships, and after some further correspondence between the India Office and the Admiralty, settling the necessary details of the conditions under which the services of these officers were to be placed at the disposal of the Indian Government, six navigating officers, viz., one staff commander, three navigating lieutenants, and two navigating sub-lieutenants, were, on the nomination of the Hydrographer of the Admiralty, ultimately selected and appointed. I also informed the Secretary of State that no one in India with scientific training could be found competent to utilise the mass of original documents which had been discovered in England and India, or to undertake the compilation and production of charts ready for publication. Only a person who had had long experience in this particular branch would be of any value, and upon my representations the Secretary of State, with the approval of the Admiralty, appointed Mr. R. C. Carrington, who had served 16 years in the Hydrographic Department, as my Chief Civil Assistant. This title was subsequently altered by the Government of India, with sanction from the Secretary of State (18th May 1876), to "Superintendent of the Drawing Branch."

Collection and examination of original documents and copper plates at the Admiralty.

14. During the time the negociations with the Admiralty were going on, my time was devoted to the examination of all the original drawings of the surveys of this country, principally executed by officers of the old Indian Navy, but many of which had hitherto remained unutilised. These were noted for early publication in our new department. I also examined all the existing charts of India, published by the Admiralty, collected the necessary books of reference, instruments, &c. &c., which could not be obtained in India, and a supply of Admiralty charts and sailing directions for transmission to our headquarters at Calcutta, and saw completed and shipped two steam-cutters to be furnished to the vessels of the survey.

Return to India.

15. After settling all the above details I left England on the 23rd December 1874, in company with Staff Commander Ellis, R.N., who had been appointed Deputy Superintendent. Proceeding *viâ* Brindisi, I arrived at Bombay on the 15th January 1875.

Surveying vessels fitted at Bombay.

16. The two vessels "Clyde" (steamer), and "Constance" (schooner), which had been fitted in the dockyard at Bombay for surveying service, by order of the Government of India, were nearly ready for sea on my arrival. They were completed with all possible dispatch, and on the 2nd February the "Clyde" under the temporary command of Staff Commander Ellis, R.N., left for the Laccadive Islands *en route* for Calcutta.

The "Constance," in temporary charge of Mr. M. Chapman, I.N., who had

commanded this vessel for three years while surveying in the Persian Gulf, under the orders of the Bombay Government, left on the 29th January for Kolachel.

17. Having dispatched these vessels, I proceeded from Bombay by rail to Calcutta, arriving on the 7th February, when I at once commenced to organise my office.

Surveying vessels fitted at Calcutta.

18. Two vessels had been selected to be fitted out by the Kidderpore dockyard authorities for surveying service, viz., the "Guide" (brig) and the "Lady Lawrence" (schooner). On my arrival, I inspected these vessels and found that, though the former had been in the hands of the dockyard since October 1874, very little had been done towards preparing her for surveying service. This may be accounted for principally by the death, in October 1874, of Mr. W. Pearson, Assistant Superintendent, first grade, whose duty it was to have superintended the fitting out of the vessels. After his death, there was no one on the spot who possessed the requisite experience to whom that duty could be delegated. The internal fittings, however, were on my arrival at once commenced, and everything was done to hasten her completion, but she was not out of the hands of the dockyard until 1st April. The "Guide" had been reported by the Marine Department as ready for sea some time previously, and was turned over to this department as equipped and ready for service.

On again looking over the schooner "Lady Lawrence," it became apparent that she could not carry a steam-cutter, and, as her accommodation for chart work was very limited, I considered it unadvisable to fit her for service under this department, and addressed the Government, proposing, on the above grounds, that she should be re-transferred to the Marine Department.

Appointments taken up.

19. On the 20th February 1875, three naval officers, viz., Lieutenants Jarrad and Hammond, and Sub-lieutenant George, together with Mr. R. C. Carrington, arrived and took up their appointments, the remaining naval officers, Navigating Lieutenant Coghlan and Sub-lieutenant Petley, arriving in the course of the following month. Three officers of the Bengal Marine and Hooghly River Survey, respectively, had been previously appointed in India on probation.

Resolution, defining the duties of the Department and ratifying appointments.

20. Pending the opening of the season for active operations at sea, my attention was given to the preparation of a modified scheme, showing what vessels and establishments were exactly required for the department, and the duties which we proposed to undertake. On these proposals the Government of India, after some delay, passed orders on the 25th October 1875. By that Resolution the appointments of the superior officers were formally recognised and notified, a suitable office establishment was sanctioned, and the duties of the department defined as follows:—

(*a.*) That systematic surveys of the coast of India were to be undertaken in suitable vessels, efficiently equipped and manned. The Superintendent of Marine Surveys acting in concert with the Surveyor General of India, and arranging that the Marine surveys should be connected with those of the Great Trigonometrical Survey.

(*b.*) The original surveys of ports, harbours, and river entrances when received in the office of the Superintendent, were, after approval, to be photozincographed at the Surveyor General's office, and issued for local navigation and engineering purposes. From these, as well as other surveys of the coast, executed on a smaller scale, charts of the coast were to be compiled on a medium scale for general navigation.

(*c.*) Copies of all original surveys to be forwarded to the Hydrographer to the Admiralty for publication, on such scales as might be decided on after the consideration of the subject by the Superintendent and Hydrograper. All corrections of surveys and other information connected with them, such as notices of changes in buoys, beacons, lights, &c., to be transmitted at once to the Hydrographer and other naval authorities, to be hereafter arranged.

(*d.*) The department also to be responsible for maintaining a sufficient stock of the various charts, published by the authority of the Admiralty, and for supplying them to the local governments, officials, or to other persons, in a manner to be arranged hereafter.

(*e.*) In

(*e.*) In order to carry out these duties effectually, the local governments and administrations, and the masters attendant at the several ports, were directed to promptly communicate all information regarding wrecks, lights, buoys, beacons, or other matters relating to the navigation to the Superintendent. The Admiral Commanding Her Majesty's Naval Forces on the East India Station was also requested to furnish the department with extracts, bearing on the same subject from the remark books of the officers commanding or navigating any of Her Majesty's ships in Indian waters. The Superintendent of Marine under the Government of Bombay, and the Master Attendant, Bengal, were also instructed to furnish information of a like character, which might be reported by the officers commanding vessels in the Bengal and Bombay Marine. The Superintendent of Marine Surveys was directed to communicate with the Government of India in regard to the lighting and marking of the sea approaches to all great Indian ports and rivers, and to suggest improvements which he might think desirable in harbour conservancy, as well as those required in the navigation of rivers throughout India which might come to his notice, either in the prosecution of the surveys or through local authorities.

(*f.*) The annual wreck chart to be compiled, an annual list of lights issued, and sailing directions for the Indian coasts, hydrographic notices and notices to mariners.

21. Pending the receipt of these orders, the office was being fitted up with all the necessary equipment peculiar to such an establishment as a Marine Survey Office. Under the able supervision of Mr. Carrington, the drawing branch was soon in working order, although our staff of subordinates was not completed until very lately. The plans for the drawing tables and presses in which to shelve the published charts of each locality as well as original documents were prepared, and both were soon ready. Mr. Carrington at once set about examining and preparing a catalogue of the numerous original documents which had been brought out from the Admiralty, as well as a selection from those (nearly 3,000 in number) which I had rescued from Bombay. He also prepared a separate catalogue of the published Admiralty charts which were arranged in our presses ready for issue. Fitting up and organising the office.

The necessary duty of establishing an office routine, systematically filing, docketing, and registering correspondence, starting the books in which to check and audit the accounts of the vessels, preparing necessary forms, as well as assisting me in the many reports called for at this early stage by the Government of India, was undertaken by Lieutenant Jarrad. A suitable head clerk was not obtained until November 1875, but the assistant clerk and writers were sufficiently acquainted with their several duties by the end of September to then enable me to relieve Lieutenant Jarrad of these duties.

Mr. Donald Sunder, as head clerk and accountant, since November 1875, has rendered good service in my office, and I cannot speak too highly of his intelligence, assiduity and devotion to his duties.

22. The official correspondence during the year 1875 was rather heavy, considering the small office staff which, during the greater part of the time, consisted only of one clerk and one copyist. The number of official letters, besides lengthy reports issued, amounted to 356, and there were 310 demi-official letters and office memoranda sent out up to the 31st December 1875. The large amount of work at the commencement was consequent on settling and placing all details before the Government prior to the issue of the Resolution, which, in consequence of questions raised by the Military (Marine) Department, and which had previously been considered as settled in England, was delayed until 25th October 1875. In consequence of this protracted delay, the greatest difficulty was experienced in conducting business, as the Accountant General refused to make any payments either to officers or crews of vessels without special sanction of the Government month after month. It thus became necessary to make application for each item of expenditure, and this caused serious inconvenience and entailed much correspondence. Official correspondence.

23. A large number of nautical questions of a scientific character are from time to time forwarded to me by the Government of India for report. The important nature of some of these subjects, affecting, as they do, so materially the interests of navigators and shipowners, warrants my enumerating the Questions affecting navigation.

principal heads for report as being points to which my attention, as well as that of Staff Commander Ellis, has been particularly directed, and the careful consideration of which has occupied a considerable portion of my time.

The most important subjects are as follows:—

Lights—
- Necessity for a light on Cape Guardafui.
- " " Cape Comorin.
- " " Muttum Point.
- " " Minicoy Island.
- Necessity for removal of Coringa (Hope Island) light to a more suitable position.
- The best means of efficiently lighting Cocanada port.
- Lighting the River Hughli.
- Removal or retention of Mutlah light.
- Lights on coast of Burma.

Buoyage and re-survey of Bombay Harbour.
Re-organisation of River Hughli Survey.
Re-organisation of River Hughli Pilot Service.
Establishment of a permanent Board for the examination of seamanship and of navigation of masters and mates in the mercantile marine.
The necessity for coolie ships calling at St. Helena and the Cape.
Native Passenger Act of 1876 with reference to long and short voyages, and seasons of fair and foul weather.
Measurements for tonnage of vessels.
Rules affecting emigrant ships. (For the better provision against fire.)
Survey on unseaworthy ships. (Home Regulations.)

I was also directed to prepare an elaborate tabular statement showing the cost of erection and maintenance of all the lighthouses and light vessels of British India, together with their positions, distinctive characteristics, &c. This duty was assigned to Staff Commander Ellis; the difficulty of getting accurate information has been most astonishing, and has much delayed the completion of this important work.

Chart Agency.

24. Under the orders of the Government of India, the question of the supply of charts corrected to latest date to Government vessels, marine authorities or other officials requiring them, as also the means of establishing a chart agency where *correct* charts and sailing directions could be purchased by the mercantile marine or others, was fully considered; the necessary forms were prepared to be forwarded to the authorities with whom charts were at present deposited, to enable me to form an idea of the number and date of last correction of those in hand, and also the probable number wanted to meet immediate requirements; and I submitted a proposal to the Government, which, if carried out, will secure the supply of charts containing the latest information to Government officials, and also prevent the nautical public being subjected to the necessity of paying extravagant prices in the bazars for obsolete charts, or being supplied by the Marine authorities with the same description of chart, from a stock which has been allowed to accumulate for years without correction.

25. The proposal (commended by the Department of Commerce) which knew well the local exigencies of India, as indicated by inquiries into many a wreck) was sanctioned by the Government of India, but the Admiralty (presumably at the instance of their hydrographer) have lately expressed their dissent generally to any chart office being established in Calcutta.

26. This is much to be regretted, as it has delayed the execution of this most important duty of our department, the Admiralty having withheld the charts which were demanded to meet the requirements of India. The subject, however, I trust will be placed before their Lordships in such a light as to convince them of the urgent necessity to reform the method hitherto pursued, and which has proved so disastrous in India.

27. A depôt for the sale of charts in Calcutta, under the control of this department, will ensure the latest editions being at all times procurable. The want of this is daily felt, and numerous applications are made for charts, sailing directions, &c., which have been met, as far as our limited stock would permit us.

us. Amongst these applications I may mention that large demands from the Admiral Commanding Her Majesty's Flying Squadron proceeding to China and Her Majesty's troop-ship "Himalaya" were complied with.

28. All arrangements have been made for the correction, supply, and sale of the charts, and we only now await their Lordships' consent to supplying us with a sufficient number of copies, the originals of which were executed by Indian surveyors, paid for from Indian revenues, and the copper-plates of which, though stored at the Admiralty, are the property of the Indian Government.

Wreck chart.

29. The wreck chart, showing the position of wrecks and casualties which occur during the year in Indian waters will, after the 1st April 1876, be prepared in the drawing branch, as well as a detailed statement and review. All the correspondence necessary for gathering every particular of accidents and disasters to shipping, as well as the issue of notices of the same to the Board of Trade, other authorities and public prints, is now carried on in that branch of this department.

Employment of vessels during the early part of 1875.

30. The season had so far advanced on the arrival of the officers and the completion of the vessels, as not to admit of any extensive operation being commenced. Most of the officers were ordered to rendezvous at Calcutta, so that the "Clyde" and "Constance" at Bombay could not be dispatched with an efficient staff. Under these circumstances, the work allotted to each was of necessity limited to the time and means at the disposal of the officer in command.

The "Clyde."

31. Staff Commander Ellis in the "Clyde" was instructed to render every assistance to Mr. A. O. Hume, C.B., Secretary to the Government of India, in the Department of Revenue, Agriculture, and Commerce, who took a passage on board for the purpose of visiting various proposed sites for lighthouses. A visit to Minikoy was originally contemplated, but it was doubtful whether the "Clyde" could carry coal enough to bring her back from that island against the N. E. monsoon. Leaving the coast of India about Pigeon or Hog Island, he was to measure a meridian distance to one of the islands of the Laccadive group, among which he was to remain about a fortnight, testing the accuracy of the existing charts, and making any necessary additions to them. Leaving the Laccadives, Staff Commander Ellis was to proceed to Paumben to meet the "Constance," and passing through the Paumben Pass to examine the anchorage, and also test the soundings between the Shingle Islets and Ramesaram, after which he was to leave for Calcutta by the 10th March.

The "Constance."

32. Mr. Chapman in the "Constance" (*see* para. 5) was first to proceed to Kolachel to make a survey of the anchorage on a scale of 10 inches to the nautic mile, also a small plan of Enciam islet and rocks, after completing which he was to proceed through the Paumben Pass into Palk Straits. Here he was to obtain additional soundings, and after noting the effect of the burst of the monsoon in the neighbourhood of Páumben Pass, leave for Cocanada. On arriving at Cocanada he was to commence a plan of that port, continuing to work in the southern portion of the Bay of Cri[illegible]ga until relieved by an Admiralty surveyor. On the 20th June I sent Lieutenant Hammond, R.N., to take command of the "Constance" and charge of the survey, relieving Mr. Chapman, who returned to Calcutta to prepare his fair sheets. Sub-lieutenant Petley, R.N., also was attached to the "Constance" and proceeded with Lieutenant Hammond to Cocanada by mail steamer.

The "Guide."

33. The "Guide" was not ready until the 7th [illegible]. I was thus obliged to relinquish my first idea of sending her to survey the Megna Flat, or even False Point, as only one of the iron steam-cutters building in Kidderpore Yard was ready, and those built in England had not yet arrived. I therefore determined that with the view of testing her equipment, as well as for the purpose of ascertaining the qualifications of the officers who had been appointed in India to the subordinate grades in the survey, the "Guide" should proceed down the river in charge of Navigating Lieutenant Coghlan, R.N., and as a preliminary experiment, survey the dangerous James and Mary shoals, of which we possessed no scientific examination.

Surveys on, and changes in, materiel.

34. The "Clyde" arrived in Calcutta on the 2nd April, and Staff Commander Ellis, R.N., reported that he had been obliged to sail the vessel during the whole of the voyage, as shortly after leaving Bombay the engines had broken down, and they were obliged to make the passage entirely under sail, never being able to start the engines. He also reported so unfavourably on the "Clyde's" sailing qualities, and on her suitability as a surveying vessel, that I applied to the Government to appoint a board of officers to hold a survey on her. In the meantime she was placed in the hands of the dockyard authorities, and the defect in the engines examined. On the 7th and 14th May 1875, respectively, a committee composed of the officers marginally noted held a survey on the vessel, but the report of the committee was never officially communicated to me.

Master Attendant.
Staff Commander Ellis, R.N.
Nav. Lieutenant Jarrad, R.N.

Survey on the "Guide."

35. On the 24th May the "Guide" returned, having completed the work detailed in my instructions to Lieutenant Coghlan. During the progress of the survey, one of the iron steam-cutters built in Kidderpore Dockyard foundered, and could not be recovered. From Lieutenant Coghlan's report of this accident it appeared that these boats were unsuited for sea work, and only safe in the smoothest water. In accordance with my instructions, Lieutenant Coghlan forwarded a report on the capabilities and suitability of the "Guide" for surveying service, &c. This report contained numerous complaints against the material supplied, and an opinion that the vessel was in every way unsuited for the work. I therefore forwarded a copy of his report to the Government of India, asking that a committee might be appointed to survey the vessel, and inquire into the correctness of the statements made in the report. On this representation the Government appointed the officers marginally noted to hold a survey on the "Guide." The result of the inquiry was that, after completely opening out the vessel, she was found to be so affected by dry rot that the committee condemned her as unseaworthy, and they were of opinion that the vessel was so defective as to render it unadvisable to incur expenditure in repairs. It was certainly the duty of the dockyard officials, when they received the order to prepare and fit up the "Guide" for surveying service, to have first ascertained that she was in sound condition. It appears, however, that no steps were then taken to ascertain this important fact; but it subsequently transpired that a committee had, about two years previously, reported that the "Guide" would be fit for any service after undergoing a few necessary repairs.

Staff Commander Ellis, R.N.
Nav. Lieutenant Jarrad, R.N.
C. Ransom, Esq., Commanding I. G. Steamer "Celerity."
J. Cranstoun, Esq., Builder, Dockyard.

36. By order of the Government of India the brig "Guide" and schooner "Lady Lawrence" (*see* para. 18) were re-transferred to the Marine Department on the 15th January 187[illegible].

Changes in personnel.

37. Consequent on the above changes a reduction in the establishment of the executive officers became necessary. The services of Mr. D. B. King and Mr. W. Norman were dispensed with, and Mr. J. B. Morgan left, at his own request, on urgent private affairs.

38. Navigating Lieutenant Coghlan, deputy superintendent, 2nd grade, resigned his appointment on the 13th July 1875 and proceeded to England.

Operations for 1875–76.

39. On the 30th August 1875 the programme of operations for the season of 1875-76 was submitted to Government*, and it was asked that instructions might at once be given to the dockyard authorities to prepare the "Clyde" for service so as to enable her to start on the 1st November. It was not, however, until the 9th October [illegible]18 that any intimation was given to this department that the defects of the "Guide" would be made good. The next day was the last day of the Doorga Puja holidays; the dockyard was closed until the 18th October, and work not commenced until the following day.

Delay in commencing out-door work.

40. The above delay seriously affected the preparations, and it was not until the 13th November that the vessel was ready for sea, although every means had been taken in this department to expedite her departure. I feel it my duty to state that the continued delay in the issue of a Resolution ratifying the appointments

* The programme was subsequently modified, consequent on the "Guide" being condemned.

ments made in England by the Secretary of State, and defining the duties of the department, caused my movements, towards making the necessary arrangements for the proper conducting of the survey, to be so impeded as to render my position a most vexatious one. I may add that it was not until the issue of the Resolution on the 25th October that my proposals, even in the most trifling details, could be carried out effectively. Until that date none of the public offices recognised the existence of the department, and the inconvenience caused by this was especially felt in conducting the business with the Account and Marine Authorities. It was not, therefore, until 25th October 1875, more than 15 months after my appointment, that I was really able to carry on the duties of the department. The delay in the Marine Department passing orders on the "Clyde" is much to be regretted, as by this means nearly three weeks of the fine season were lost; whilst in the case of the "Constance" there was a loss of five weeks.

Parties formed.

41. On the receipt of the Resolution, Captain Ellis took up the duties of Chief Naval Assistant, and the other officers were divided into two parties and attached to the "Clyde" and "Constance," the former under the command of Navigating Lieutentant F. W. Jarrad, R.N., and the latter under the command of Navigating Lieutenant G. C. Hammond, R.N.

Visit of inspection to Burma ports.

42. On the 4th October 1875, in accordance with the orders of the Government, in the Department of Revenue, Agriculture, and Commerce, conveyed in their Letter, No. 251, dated 20th August 1875, I embarked on board the British India Steam Navigation Company's steamer "Mahratta," on a tour of inspection of the principal ports of Burma. I visited Chittagong, Akyab, Kyouk Phyou, Bassein, Rangoon, and Moulmein, returning to Calcutta on the 28th October. During my absence Staff Commander Ellis, R.N., deputy superintendent, remained in charge of the office.

Admiralty charts of Burma Coast.

43. From this visit of inspection I came to the conclusion that the charts of the coast of Burma were even less trustworthy than stated in my "Review of Admiralty Charts." But their deficiencies and errors are traceable mainly to this cause, viz., that, although within the last decade fresh surveys of some rivers and ports have been executed, no copies of these were sent to England owing mainly to the prevalent supposition among the marine officials that it was nobody's business to send them. Thus the charts used by the shipping, and even at the offices of the several masters-attendant, did not indicate the actual positions of the buoys which mark the approaches to three or four great ports. Errors in the charts, therefore, should not be attributed to defective Admiralty superintendence in England, but to apparent ignorance or apathy and neglect on the part of successive officials in the Indian Marine Department.

More suitable vessel much required.

45. The urgent necessity for providing a vessel of suitable construction, properly equipped and fitted for surveying, has become still more apparent since operations have been conducted in the "Clyde," the only vessel now at our disposal. The reports of Staff Commander Ellis, the committee ordered to survey her, and the officer conducting the survey on the Burma coast last year, all point to the unsatisfactory nature of the capabilities and accommodation of this vessel for the special and important duties for which she is required. All these disadvantages and the economy as well as efficiency to be derived from having a suitable vessel have been the subject of frequent correspondence during the past year.

45. The several ports of British India which are within convenient distance of head-quarters, and which afford special facilities for frequently replenishing coal and stores, will, after the coming season (1876-77), I trust, have all been re-surveyed, and I shall be unable to utilise the "Clyde" on more distant coasts except at a great disadvantage. I am therefore in hopes that the construction of the new steamer, sanction for which was granted by the Government of India last summer, will be pushed forward with all practicable dispatch, and that if possible, she may be ready for the season of 1877-78.

Good services of the officers.

46. Mr. M. Chapman, assistant superintendent, 2nd grade, and Mr. P. J. Falle, assistant superintendent, 3rd grade, were specially brought to my notice by Lieutenant Jarrad, as officers deserving of advancement, and as there

were vacancies in the department, I recommended their promotion to higher grades.

47. I cannot close this section of my report without putting on record the most valuable assistance rendered to me by the officers of my department in organising an office based on the long-tried and well-working system which has made the British Hydrographic Office so famous throughout the world.

48. On the 31st March 1876 the strength of the Marine Survey Department was as follows :—

SUPERINTENDENT'S OFFICE.

Superintendent of Marine Surveys	Commander A. Dundas Taylor, I.N., F.R.G.S.
Deputy Superintendent, 1st Grade	Staff Commander J. H. Ellis, R.N.
Head Clerk and Accountant	Mr. Donald Sunder.
Clerk	Preonath Mookerjee.
Copyists	Essen Chunder Das. Bidhoo Bhushan Dey.

DRAWING BRANCH.

Superintendent	Robert C. Carrington, Esq.
Chief Draftsman	Kally Das Seal.
Draftsman	Abdool Kurreem.
„	Thomas Rebeiro.
„	Abdoor Ruheem.
Chart Clerk	Jodoo Nath Das.

One chart mounter, one duftry, one duffadar, four peons, and two menials.

EXECUTIVE STAFF OF SCIENTIFIC OFFICERS.

Navigating Lieutenant F. W. Jarrad, R.N.	Deputy Superintendent, 2nd Grade, Commanding I. G. S. "Clyde."
Navigating Lieutenant G. C. Hammond, R.N.	Assistant Superintendent, 1st Grade, Commanding I. G. S. "Constance."
(Vacant)	Assistant Superintendent, 1st Grade.
Navigating Sub-Lieutenant E. W. Petley, R.N.	Assistant Superintendent, 2nd Grade, attached to I. G. S. "Constance."
Mr. Morris Chapman, I.N.	Assistant Superintendent, 2nd Grade, attached to I. G. S. "Clyde."
(Vacant)	Assistant Superintendent, 2nd Grade.
(Vacant)	ditto.
Mr. P. J. Falle	Ditto, 3rd Grade, attached to I. G. S. "Clyde."
(Vacant)	Assistant Superintendent, 3rd Grade.

SURGEON AND NATURALIST.

Dr. J. Armstrong, B.A.	Attached to I. G. S. "Clyde."

EXECUTIVE OFFICERS.

Mr. G. W. Hill	Attached to I. G. S. "Clyde."
Mr. T. H. Baker	Attached to I. G. S. "Constance."

A. Dundas Taylor,
Commander (late I.N.),
Superintendent of Marine Surveys.

SECTION II.

DRAWING BRANCH.

STATEMENT showing the Nature of the WORK performed in the DRAWING BRANCH from May 1875 to 31st March 1876.

THIS branch, under the superintendence of Mr. R. C. Carrington, has been busily engaged in the production of New Navigating Sheets of the Coast of India, comprising the whole series from Karachi to Pulo Penang. Five D. E. (*double elephant*) sheets have been compiled and forwarded to the Secretary of State, and they are now in course of being engraved. Several new Charts of Ports and Anchorages, much needed, have also been prepared and photozincographed, as detailed in the following Tables:—

Number of Chart.	TITLE.	Size.	Scale.	REMARKS.
	Sheet 1: Karachi to Pigeon Island, in lat. 14° S.	D. E.	3·2 inches = 1 degree.	Compiled from the surveys of Commanders Ethersey, Grieve, Taylor, &c. The Kattywar Coast has been reduced from the original chart discovered by Captain Taylor, at Bombay, and shows details never before published; the whole coast has been adapted to the latest astronomical positions in connection with the Great Trigonometrical Survey, and other information regarding lights, &c., corrected to date of publication.
15*a*	Sheet 2: Vingorla to Cocanada - - -	2 D. E.	3·2 inches = 1 degree.	The portion of the coast between Vingorla on the west, to Cocanada on the east, is embraced in this chart, to be published on two double elephant sheets. It is intended that these two sheets should be joined to form one good navigating chart of the southern portion of India and the Island of Ceylon. The coast has been most carefully reduced from the large scale Admiralty Charts, and the interior, showing the principal mountain ranges and river courses, as well as all the railways branching from Madras, has been taken from the latest impressions of the "Atlas of India" sheets. The interior of the Island of Ceylon has been reduced from the excellent large scale map by Arrowsmith, and other notes added from Sir James Emerson Tennent's "Ceylon." All the latest hydrographic information has been inserted, the whole being adapted to the latest astronomical determinations.
15*b*	Sheet 3: Cocanada to Bassein River - -	D. E.	32 inches = 1 degree.	Embraces the northern portion of the Bay of Bengal from Cocanada to Bassein River, and includes the whole of the delta of the Ganges. The principal hill ranges, and other details of Aracan and Pegu, have been taken from the Revenue Survey maps of those provinces, and adapted to the latest observations determined by the Hydrographic Surveys of the Indian and Royal Navies.
15*c*	Sheet 4: Bassein River to Pulo Penang - -	D. E.	3·2 inches = 1 degree.	Embraces the coast between Bassein River and Pulo Penang, and includes the Andaman and Nicobar Islands. In the compilation of this sheet it was discovered that the difference of longitude, as shown on the Admiralty Charts between Rangoon and Amherst, could not be correct, as the whole of the coast of Tenasserim, &c., between Moulmain and Penang was, by accepting this, thrown upwards of four miles too far west. As this was a most important matter to be settled, a meridian distance was measured between Rangoon and Amherst (the entrance to Moulmain River). The positions of the town of Rangoon and Elephant Point Pagoda were determined in connection with the Great Trigonometrical Survey, and forwarded to this department by Colonel Walker. The result of the meridian distance, applied to these positions, showed that the longitude of Amherst has hitherto been incorrectly shown on the Admiralty Charts. The new position agreed exactly with the work brought up from Penang in connection with Singapore. The delta of the Irrawaddy, as also the interior of Tenasserim and Tavoy, as far south as the Packchan River, has been reduced from the Revenue Survey maps; the Nicobar and Andaman Islands from the latest corrected Admiralty Charts.
	[NOTE.—The above series of sheets are being engraved in England.]			

SECTION II.—DRAWING BRANCH—*continued.*

Number of Chart.	TITLE.	Size.	Scale.	REMARKS.
47 4z. *d.*	Kattiawar Coast, by Lieutenant A. M. Grieve, I. N., brig "Palinurus," 1854.	2 D. E.	M=0·5	100 copies photozincographed.
117	Luff Point to Anchoring Creek, showing the James and Mary Shoals, and the entrance to the Roopnarain, River Hooghly, from the Survey by Navigating Lieutenant J. E. Coghlan, R.N.	Atlas -	M=6 0	300 copies photozincographed. The sheet was much needed by local pilots and engineers, and can be always used as a reference sheet, being sectionally sounded.
61	Cherbaniani Reef, Chitlac and Kiltan Islands, Lakadivh Archipelago, from the surveys by Lieutenants Selby and Taylor, late I.N., brig "Taptee," 1848.	Small Atlas.	M=2·0	150 copies photozincographed. Reproduced as a record of the survey.
81	Kolachel Roadstead and Enciam Rocks, Travankor, from the survey by M. Chapman, late I. N., I. G. schooner "Constance," 1875.	Atlas -	M=10·0	300 copies photozincographed. Hitherto no plan has existed of this coffee port; was also much needed by the Commanders of the B. I. S. N. Company's steamers.
53	Byramgore Reef and Chereapani Lakadivh Archipelago, and Angria Bank, from the surveys by Lieutenant Selby and Taylor, late I. N., 1847–48.	Atlas -	M=2·0 M=2·5	150 copies photozincographed. Reproduced as a record of the survey.
113	Coringa or Cocanada Bay and the mouths of the Godavery, Bay of Bengal, from the survey by Navigating Lieutenant G. C. Hammond, R.N.	D. E.	M=2·0	500 copies photozincographed. This is a most important sheet, as the old chart was misleading in the extreme.
851	Quilon Roads, west coast of India, from a sketch by Lieutenant A. D. Taylor, late I. N., 1858.	D. E. / 4	M=2·0	200 copies photozincographed. Published at the request of the Commanders of the B. I. S. N. Company's steamers.
109	False Point anchorage, coast of Orissa, from the survey by H. A. Harris, Conservator of Orissa Ports.	D. E. / 4	M=1·5	100 copies photozincographed. Published at the request of the Commissioner of Orissa, as a temporary chart until the new survey by Lieutenant Hammond, R.N., can be produced.
39	Entrance to Rajpuri River, west coast of India, compilation from a sketch by Navigating Lieutenant W. P. Haynes, R.N., and surveys by officers of the late Indian Navy, 1876.	D. E.	M=4·0	200 copies photozincographed. Published, as there was no existing plan of the anchorage.
	Index Chart of lighthouses and lightvessels in British India.	D. E. / 4		150 copies photozincographed. Bound up with the new Light List.
	Magnetic chart of the Indian Ocean -	-	- - -	In course of preparation.

SECTION II.—Drawing Branch—*continued.*

Miscellaneous.	For what Purpose Executed.
Reduction of False Point Anchorage for comparison with Admiralty Chart.	For office use.
Tracing of Arrowsmith's map of Ceylon - - -	ditto.
Copy of Kopah Inlet, Siam Coast - - - - -	For the hydrographer to the Admiralty.
Tracing of Mr. Harris's Survey of False Point -	For Lieutenant Hammond, R.N
Inserting fathom lines and coast line on 50 sheets of Bahrein Harbour.	For issue and sale.
Reduction of Heathcote's Survey of entrance to the River Hooghly for comparison with Admiralty Chart.	For office use.
Compilation of the River Hooghly and its approaches.	For the use of the Committee inquiring into the River Survey Department.
Copy of Rangoon approaches, by Lieutenant Jarrad, R.N., 1876 - - - - - - -	For transmission to the Hydrographer to the Admiralty.
Numerous tracings, corrections, and additions to several charts.	For the Hydrographer and other Naval authorities.

Charts Corrected.

During the year 1,091 charts have been examined and corrected for new lights, buoys, shoals, beacons, &c., and the following hydrographic notices to mariners attended to, and the charts corrected accordingly:—

244 English - - -	Notices to mariners, affecting	198	charts.
364 American - -	„	„	„	37	„
17 Indian Government	„	„	„	116	„
188 Spanish - -	„	„	„	47	„
511 Dutch - - -	„	„	„	59	„
167 German - -	„	„	,	72	„

New Publications.

A list of lighthouses and light-vessels in British India, with an Index Chart showing the position of the various lights.

A Catalogue of Charts for 1876.

Spheroidal Tables, showing the length in feet of a degree, minute, and second of latitude and longitude; the corresponding number of statute miles in each degree of latitude; the number of minutes of latitude = nautic miles, contained in a degree of longitude, under each parallel of latitude; and the length, in tables, of a minute of longitude, corresponding to each nautic mile; for every 10 minutes of the quadrant, impression $\frac{3}{11}$, by R. C. Carrington.

SECTION III.

SURVEYING OPERATIONS.

(Early part of 1875.)

TRAVANCORE AND GULF OF MANAR.

(I. G. Schooner "Constance.")

Personnel.

Mr. M. Chapman, late I. N., Officiating Assistant Superintendent, 1st grade, } Commanding.
Mr. Hill, Executive Officer.
„ Baker, „
„ Searle, Surveying Amanuensis.

THE "Constance," with staff as per margin, left Bombay on the 29th January 1875, and arrived at Kolachel on the 7th February. The staff was only a temporary one, as there were no other naval surveyors available, and Mr. Chapman, who was the only surveyor on board, was consequently working really alone; he, however, reports that the executive officers showed a desire to acquire a knowledge of surveying, and were of some assistance to him in this survey.

Survey of Kolachel and Enciam rocks.

Work was commenced on the 8th February. The survey was executed more in the style of a land survey, as Mr. Chapman's knowledge was gained under Mr. Girdlestone (late I. N.) of the Topographical Survey of India, who, for a time was lent to command the "Constance" for the purpose of surveying Bahrein in the Persian Gulf. The coast was charted by means of a traverse survey with theodolite, chain and plane table, and the soundings were not obtained in sections, but Mr. Chapman made a plan of the port which, to all intents and purposes, suffices for the requirements of navigation. The amount of coast charted was 6 miles, and $5\frac{1}{2}$ square miles of water were examined.

Soundings in Palk Strait and and Gulf of Manar.

The "Constance" left Kolachel, and, touching at Tuticorin for water, proceeded through the Paumben Pass to Paumben. During the month of April Mr. Chapman was working in Palk Strait, obtaining additional soundings and verifying those on the published charts. After noting the burst of the south-west monsoon from Condigal Point, the "Constance" left on the 16th May, and, after touching at Madras, arrived at Cocanada on the 23rd May.

Cocanada Survey.

The survey of Cocanada was at once commenced by Mr. Chapman, and he carried on the work in the southern portion of the bay until relieved by Lieutenant Hammond, R.N., on the 21st June, when he returned to Calcutta. From that date the survey was carried on by Lieutenant Hammond assisted by Sub-Lieutenant Petley, and was completed on the 24th August. The survey comprised 79 square miles of water and 42 miles of coast charted on a scale of 2 inches = 1 nautic mile. Lieutenant Hammond furnished a lengthy report on the question of effectively lighting the port of Cocanada, which was forwarded to the Government for consideration. On the 12th September the "Constance" arrived in Calcutta.

RIVER HOOGHLY.

(I. G. Brig "Guide.")

Personnel.

Navigating Lieutenant J. E. Coghlan, R.N., Deputy Superintendent, } Commanding.
Navigating Lieutenant G. C. Hammond, R.N., Assistant Superintendent, 1st grade
Sub-Lieutenant C. George, R.N., Assistant Superintendent, 2nd grade.
Sub-Lieutenant E. W. Petley, R.N., Assistant Superintendent, 2nd grade.
Mr. J. Nickels, Assistant Superintendent, 2nd grade.
Mr. P. J. Falle, Assistant Superintendent, 3rd grade.
Mr. C. J. Wortley, Assistant Superintendent, 3rd grade.

On the 8th April, the "Guide," with staff named in the margin, proceeded down the river and anchored off Roychuck, in the vicinity of the James and Mary Shoals. The plan of this dangerous part of the Hughli, Luff Point to Anchoring Creek, including the entrance to the Roopnarain River, was constructed on 10 inches to the nautic mile, the river within these limits being sounded in sections which in no case were more than 400 feet apart. The work was completed on the 24th May, when the "Guide" returned to Calcutta, and Sub-Lieutenant George commenced preparing the fair sheet, which was afterwards reduced and photo-zincographed on a scale of 6 inches to the nautic mile. It is a valuable chart for record, and, if the whole of the river from Chandernagore to the sea were similarly surveyed from year to year, the comparison of these minute surveys, and the knowledge of the action of the tides and

and freshets on particular localities, which such a rigorous survey would impart, would enable engineering works for the improvement of the conservancy of the river to be carried out with confidence as to their results.

Southern India and Laccadive Islands.

(I. G. S. "Clyde," 300 Tons, 60 h. p.)

Staff-Commander Ellis, R.N., with officers named in the margin, proceeded on the 2nd February in the "Clyde" for Calcutta, the head-quarters of the Marine Survey Department, taking as passenger Mr. A. O. Hume, C.B., Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce, as important questions concerning lighthouses, commerce, and navigation had to be considered by him.

Personnel.
Mr. J. B. Morgan, } Executive Officers.
„ D. B. King, }
Dr. J. Armstrong, Surgeon and Naturalist.

The "Clyde" finally left Bombay for Pigeon Island, calling *en route* at Vingorla Rocks and St. George's Islands. During this short trip the engines broke down entirely, in consequence of several portions of the machinery becoming disabled, and further by the jamming of the screw-shaft in the sternpost aperture. Thence to Calcutta the voyage was performed under sail alone.

Laccadive Islands.

Having secured the necessary chronometrical and astronomical observations at Pigeon Island for connecting by meridian distance* this island with one of the Laccadive group, sail was made on the 8th February for Cherbaniani, and whilst proceeding thither several deep soundings were obtained.

Cherbaniani, the northernmost dangerous reef of the group, was reached on the 11th, and anchorage obtained in 8 fathoms, about 200 yards from its south-west edge. From the observations and exploration made, no change in the shape or extent of the reef had occurred since the survey by Lieutenants Selby and Taylor in 1848. The *sandbanks* mentioned in the west coast of Hindoostan Pilot, as situated on its north and east side, proved to be heaps of decayed coral.

Betra-par, to the southward, was the next reef visited, and astronomical observations obtained on Tree Island, situated at its northern extremity. Mr. Morgan, who explored this reef, informed Commander Ellis that the sandy islet stated in the "Sailing Directory" to lie to the eastward of the reef did not exist.

The vessel then visited, in the order mentioned, other islands of the group, viz., Kiltan, Cardamum, where observations for meridian distance and circum-meridian altitudes for latitude were taken, Ameni, Pere-mul-par, Aucutta group, Pitie sandbank, and Cabruti. These islands and reefs, excepting Kiltan, which is well surveyed, are very insufficiently examined, and great caution is necessary when navigating in their vicinity. From the "Clyde" breakers and several shoal-patches were observed, when sailing between Aucutta and the islands Bingaro and Tingaro, to the north-east.

Proceeding to Kolachel, where the vessel arrived 27th February, a deep sounding of 990 fathoms was obtained, 19 miles due west of Kalpeni, and 1,290 fathoms, in latitude 9° 38′ 40″ N., longitude 74° 55′ 40″ E., the nature of the bottom in neither case being ascertained, owing to the line parting when hauling in. This sounding-line, previous to its being supplied to the "Clyde," had been in store at Bombay Dockyard for upwards of 14 years, and on examination was found to be in a state of great decay.

Leaving Kolachel on 28th February, having taken on board stores, &c., the vessel anchored at Tuticorin outer anchorage (distant about 90 miles from Kolachel) on 8th March, having experienced head-winds or a succession of fresh north-east breezes for the first week. This trip afforded Commander Ellis an excellent opportunity for testing the sailing qualities of the "Clyde," which resulted on arrival at Calcutta in a very unfavourable report. The voyage thus far having been tediously long, Mr. Hume, whose term of leave had nearly expired, decided to land and overtake a steamer at Madras, to enable him

* Since forwarded to the Hydrographer of the Admiralty.

him to resume his public duties at Calcutta on the expiration of his leave, as it was found by continuing on the "Clyde" it would be quite impossible to do so. During a stay of five days the chronometers were rated by observations on Hare Island, thus connecting this island with Cardamum of the Laccadives.

On the 15th March the vessel anchored at Paumben Horseshoe Bank Channel, and in accordance with instructions, an examination was made of the depth of the channel into Mootapetta Bay (Port Lorne), and the soundings near that locality were tested, which, on comparison with Captain Powell's survey of 1837, differed considerably. The soundings in the Eastern Channel, between the Shingle Islets, Cooreesuddy Island, and Ramesaram Island, were likewise tested, and, although agreeing tolerably well with the former survey, it is desirable that a new survey, when opportunity offers, should be made. The positions of the several conspicuous white beacons which have been erected of late years to facilitate the navigation of Paumben Pass, buoys, and other marks, were obtained. The dredging and blasting operations are still continued in the Pass, and a depth (March 1875) of 11 feet 9 inches attained, it being confidently expected that the Pass would soon be available for vessels of 14 feet draught.

The "Clyde" was then taken to a position about 2½ miles off shore to the northward of Ramnad Promontory, in latitude 9° 20′ N., longitude 79° 6′ E., and the distances from high-water line of the 2, 3, 4 and 5-fathom low-water depths were ascertained. It was near this position that the site of a proposed cutting, or ship-canal, through Tonitory Point, by Sir James Elphinstone, received recently some attention by Mr. George Robertson, a civil engineer appointed by the Government of India to report on Indian harbours. He had only time, however, for a very cursory examination; but this, together with several other proposed schemes, has been rejected for the less costly undertaking of deepening, by dredging and blasting operations, the channel formed by nature.

Commander Ellis now decided to push on as fast as possible for Calcutta, as it was impossible, for the want of steam, the limited means at his disposal, and being single-handed, to carry out further the several investigations in Palk's Bay which I had instructed him to make. He accordingly left Paumben on the 20th March, calling at Madras on the 24th for provisions, &c., and arrived in Calcutta on 2nd April.

During the voyage the dredge was used whenever practicable, and many marine specimens of interest were collected. Some good specimens of sea-birds were also collected and preserved, which were of use to Mr. Hume in writing his valuable papers on Indian Ornithology.

SURVEYING OPERATIONS.

(Season, 1875-76.)

BURMA COAST.

I. G. Steamer "Clyde."

THE "Clyde," with staff marginally noted, left Calcutta *en route* for Rangoon on the 13th November 1875. When off Cape Negrais the dredge was used as often as practicable, but the locality proved to be too rocky to afford many natural history specimens; and the "Clyde" anchored at Diamond Island on the 20th November, to rate the chronometers, and allow Dr. Armstrong to explore the reefs, which extend one and a half miles from the south point of Diamond Island. Leaving Diamond Island on the 22nd, the "Clyde" arrived at Rangoon on the 24th. Coaling and making the necessary arrangements for the transit of a party for the purpose of

Personnel.

Navigating Lieutenant F. W. Jarrad, R.N., Deputy Superintendent. } Commanding.

Navigating Sub-Lieutenant C. George, R.N., Assistant Superintendent, 1st grade.

Mr. M. Chapman, I.N., Assistant Superintendent, 2nd grade.

Mr. P. J. Falle, Assistant Superintendent, 3rd grade.

Dr. J. Armstrong, B.A., Surgeon and Naturalist.

of erecting stations along the hitherto unmapped shore between Elephant Point and the entrance to the To-Kwa (China Ba-keer) River occupied until the morning of the 28th November, when the vessel proceeded down the river and anchored off Elephant Point. Work was commenced on the 29th November.

Survey of Rangoon

Lieutenant Jarrad reported that the erection of a tide-pole in a suitable position was a matter of great difficulty, owing to the exposed nature of the only available positions, and great strength of the tidal stream, which, acting on the great length of pole necessary to register 22 feet rise and fall, caused it frequently to be swept away. Indeed, the tide-pole appears to have been a continued source of anxiety from the frequency in which it was broken off by the above causes, or from native boats fouling it, and thus many days' work was utterly lost. It is most important that a substantial tide-pole should be erected at Elephant Point, so that there would be no delay or difficulty in examining the river at any time. A series of uninterrupted tidal observations at this place would be of great value, and I hope ere long to see a self-registering tide-gauge erected there. The erection of the main stations occupied some time, especially those along the coast between Elephant Point and the China Ba-keer River, where, owing to the great distance the mud banks extended off-shore, considerable difficulty was experienced in landing. A party, however, after several ineffectual attempts, at last succeeded in landing the necessary tents and instruments, and, through the kind assistance of Lieutenant Parrot, Assistant Commissioner, who made all the arrangements for the transit of the party, &c., the work was successfully accomplished in four days. Owing to the coast being so low, and in most parts fringed with mangroves to the water's edge, the main stations required to be of some dimensions, and also to be constructed in a very substantial manner. Ordinary marks could be but barely discerned at the edge of the mud flaps, much less could they be distinguished in the channels where they were required to be seen in order to fix the soundings. Occasional bad weather and high tides rendered it necessary to renew these marks once or twice during the progress of the survey. Unfortunately, the nature of the ground (soft mud) prevented any steps being taken towards arranging for permanent stone or brick pillars being placed to mark the sites of the several main stations of the survey. Owing to the strength of the tidal stream during spring-tides, the boats were able to do but little sounding at that period, and the operations were then confined to shore work; indeed, it might almost be said that the sounding was solely performed during neap-tides. During the months of November and December the strong breezes caused a heavy sea on the banks and very much impeded the progress of the work, while the continuous thick fogs in January and February were the cause of sometimes three or four days at a time being lost. The survey was thus not completed until the 8th March, a month later than was estimated.

Extent of survey of Rangoon approaches.

The survey of the approaches to Rangoon river comprised 87½ miles of coast trigonometrically laid down, and 216 square miles of water examined; the new chart extending 30 miles north and south, and 18 miles east and west. The difficulty of sounding sectionally with the exactitude with which this survey was executed in such strong tides and on a low coast, where marks cannot be made prominent, cannot be overestimated.

Longitude of Amherst.

In compiling in the Drawing Branch Sheet 4 of the coast series,* Mr. Carrington found that when the coast of Tenasserim was drawn in connection with Singapore and Penang, there existed a gap of about 4½ miles of longitude between the above coast and that inserted from the Admiralty Chart of the Gulf of Martaban, &c.

To clear up this very important point, I telegraphed to Lieutenant Jarrad at Rangoon, and ordered him to make the necessary observations for measuring a meridian distance between Elephant Point (Obelisk), Rangoon River—the position of which had recently been determined by Mr. Beverley, of the Great Trigonometrical Survey of India—and Amherst Point (Pagoda), Moulmein River. The meridian distance was measured with eight chronometers, the errors of which were determined on each occasion by six sets of observations of equal altitudes

* *See* page 13.

altitudes of the sun's limbs and centre, observed at Elephant Point on the 22nd February and 2nd March, and at Amherst on the 24th and 29th February. The travelling rates deduced from the above observations, when applied, gave the results shown in Appendix H.

The range of the difference in the results of the meridian distances, as shown by each of the eight chronometers, was 2·25 seconds.

The result was most satisfactory, as it proved the correctness of Captain Ross' triangulation of the coast of Tenasserim in connection with the astronomical positions of Singapore and Penang, and cleared up the discrepancy existing between the position of Amherst, as shown on Sheet 4, in connection with Singapore, and the position of the same place as shown on the Admiralty Chart of the Gulf of Martaban, No. 823, by proving that the position, as given on the above-named document, was 4½ miles in error:

	° ′ ″
Longitude of Elephant Point Obelisk, as determined by Great Trigonometrical Survey	96 19 14·2
Meridian distance by Lieutenant Jarrad, R.N.	1 13 49·10
Longitude of Amherst Point Pagoda	97 33 03·3
Longitude from Admiralty Chart, No. 823	97 28 30·0
Error in position of Amherst on Admiralty Chart	4 33·3

Rangoon and Amherst had not previously been connected by a meridian distance, and I consider this to have settled a very important point.

I have determined on having observations made next season at Diamond Island (off Cape Negrais) and Amherst, for the same purpose. We should then have three of the principal points in the Gulf of Martaban in their relative astronomical positions. An entire series of meridian distances was one of the principal wants referred to by the committee of which Captain Constable was a member, and who reported on the want of Indian marine surveys as far back as 1862. The whole of the eastern side of the Bay of Bengal has hitherto been very incorrectly laid down on the Admiralty Charts, an error of from five to eight miles sometimes existing, and no systematic astronomical connection of the principal places along the seaboard has ever been made. As our surveys progress, these errors will be cleared up, as, when a suitable vessel is provided, a chain of rigorously measured meridian distances will form the primary work on each coast; but although we must wait for such a systematic method of procedure, from want of suitable means, we can clear up gradually a few of the existing errors in longitude; and this is being done.

Want of a series of meridian distances.

The Krishna Shoal Light had been reported out of position by the officer commanding I. G. steamer "Nemesis." I therefore instructed Lieutenant Jarrad to test, if time and circumstances permitted him, the correctness or otherwise of this statement, on his way from Rangoon to Akyab. This was done, and the result shows that the Krishna Lighthouse is in the position assigned to it on Admiralty Chart No. 823, and that the report of the above officer was incorrect.

Reported error in the position of the Krishna Light.

Lieutenant Jarrad also obtained a line of soundings westward of the Krishna Light, which, although not sufficient to be called an examination, yet goes to prove that the Baragua Flat has not extended to the southward, as reported to the Government by the officer commanding the I. G. steamer "Tenasserim." Stringent orders should be issued to the commanders of these vessels to take every opportunity of verifying any suspected discrepancy or error in the charts or sailing directions, of which they have frequent opportunities; and they should also be instructed that, in the event of their discovering any such error, their report should contain a clear and concise statement of the steps which were taken to establish a proof of the correctness of their conjectures; the observations taken should also accompany the statement. Statements of the nature above alluded to, unsupported by any direct proof, are worse than useless; they are mischievous.

Reported extension of the Baragua Flat.

It was the intention to have tested the longitude of Diamond Island, but on the

the "Clyde's" arrival there the weather was so unfavourable that the vessel was obliged to anchor under the lee of the island for shelter. Here she remained for two days, during which time the sea was so heavy as to render landing on the island impracticable.

Dredging between Diamond Island and Akyab.

On the 16th March the weather moderated, and the "Clyde" left for Akyab, sounding at intervals to ascertain if the depth admitted of putting over the dredge. The dredging operations were of necessity limited to shallow water, owing to the lack of the necessary appliances for deep-sea sounding and dredging on board.* The greater number of dredgings were obtained in depths varying from 90 to 10 fathoms to the southward and westward of Cheduba Island, and thence northward towards Akyab, passing the Terrible Rocks at about seven miles off. This locality proved to be very prolific, and afforded several very beautiful specimens, some of which I believe are entirely new.

Survey of Akyab.

The "Clyde" arrived at Akyab on the 20th March, and on the 21st the survey was commenced, and by the end of the month the base had been measured and the main triangulation obtained. Much of the surveyor's time was spent in superintending parties clearing the tops of the hills of jungle to enable the necessary stations to be erected. On the summit of Borongo the jungle was so high as to necessitate a party staying there two days. Lieutenant Jarrad reports it difficult to obtain Burmese to cut the jungle, as the natives are extremely independent, and demand very high wages. The want of an interpreter, too, was much felt here, as none of the natives understood a word of English or Hindustani, and communication with them was carried on with difficulty.

Death of Sub-lieutenant C. George, R.N.

Cholera had been spreading for some time amongst the native population, especially amongst the coolies employed in the rice-mills, numbers of whom died daily; and there had also been some fatal cases among the shipping and in the prison. On the night of the 30th March Navigating Sub-Lieutenant C. George, R.N., assistant superintendent (1st grade), was suddenly seized with this fatal disease, and although everything was done by Dr. Armstrong (the surgeon of the "Clyde"), and the civil surgeon of Akyab (Dr. Mountjoy), to arrest the progress of the disease, this unfortunate officer died at noon on the 1st April. As some of the officers and crew were suffering from symptoms of a similar character, Lieutenant Jarrad decided, with the concurrence of Dr. Armstrong, that the ship should be vacated by the healthy portion of the crew. This was accordingly done, and a camp was formed on the sea-beach in a healthy situation, while both healthy and sick were narrowly watched. The ship was fumigated and thoroughly cleaned in a few days, and fortunately no more cases occurred, and the worst case amongst the sick recovered.

As I was then on my way down the coast of Burmah on a visit of inspection, I saw Lieutenant Jarrad at Akyab, and as cholera was still raging in the district, I ordered Lieutenant Jarrad to suspend his operations, and, with a view of recruiting the health of the officers and crew, leave Akyab for a cruise outside, during which time he was to visit the Terrible Rocks and ascertain on which group a light-house could best be erected in the event of its being found necessary to establish a light there, and he was also to obtain soundings and dredgings as opportunity offered.

The coast between Cheduba and Kyouk Phyou.

The "Clyde" left Akyab on the 10th April, sounding and dredging to the southward towards Cheduba Island, where the vessel anchored. The channel between Cheduba and the mainland of Ramree Island was examined and found to contain very uneven depths, the general features not at all agreeing with the published chart; but the weather was so threatening, and heavy rollers had set in from the south-west, that only a very rough examination could be made, and the anchorage was so exposed that, taking into consideration that bad weather might be expected at any moment, Lieutenant Jarrad thought it unsafe to remain there. The "Clyde" therefore proceeded northwards, and tested the correctness of the coast of Ramree Island between Cheduba and Kyouk Phyou, as delineated on Admiralty Chart No. 821. Lieutenant Jarrad reports it to be very roughly laid down, the character of the coast (high hill ranges) not shown, and the whole to be "out of bearing"† when referred to Cheduba Island. This

* The "Clyde" is too small for a sea surveying vessel, and could not be fitted with the necessary gear without great expense, and no adequate return could be expected.

† *See* page 33, Appendix F.

This is to be easily accounted for, as the chart referred to was compiled in the Hydrographic Office from the best material in hand; but as these were more of the nature of sketches than surveys, and as the astronomical positions of the points between which the coast was filled in were never ascertained by any rigorous method, it is more than probable that considerable errors exist in the longitudinal distance between many places (as was the case between Elephant Point and Amherst), and consequently portions of the coast, though charted locally with tolerable correctness, may be relatively very much out of bearing.

Terrible Rocks.

Westerly rollers, causing the sea to break heavily, prevented a landing being effected on any of the rocks of the group, and after spending a day in their vicinity, the threatening appearance of the weather made it advisable to seek a safe anchorage in Kyouk Phyou.

Examination of Kyouk Phyou.

The examination of Kyouk Phyou harbour was at once commenced. The necessary stations were erected, and the main triangulation obtained, the buoys fixed, the Bombay and Reliance Shoals examined, and part of the coast and foreshore plotted on a dry proof of the published Admiralty plan of the harbour. This was done for the purpose of ascertaining whether the published plan was sufficiently correct with respect to the shore details, so as to necessitate only a re-examination of the reefs and anchorage. The published plan, however, was found so incorrect that I have arranged for the survey of this harbour to be continued next season, should time admit of this being done.

The fine weather broke up on the coast of Burma about the 15th April, and the "Clyde" left Kyouk Phyou on the 24th, arriving at Calcutta on the 28th, having experienced heavy weather off the Sandheads.

Considering all the difficulties with which Lieutenant Jarrad has had to contend in this the first season of the resumption of Marine Surveys in India; that he was working with a native crew, and that a great part of his time was necessarily devoted to bringing the members of his staff, who had been gathered from different sources, to work in a uniform and systematic manner, and also that the vessel affords none of the facilities for scientific surveying which are to be met with in a vessel engaged on similar service in the Royal Navy, I think the outturn of work has been satisfactory.

Orissa Coast.

(I. G. schooner "Constance.")

Personnel.
Navigating Lieutenant G. C. Hammond, R.N., Assistant Superintendent, 1st grade, Commanding.
Navigating Sub-Lieutenant E. W. Petley, R.N., Assistant Superintendent, 2nd grade.
Mr. W. H. W. Searle, Surveying Amanuensis.

The "Constance," with the staff detailed in the margin, left Calcutta on 6th December 1875, arriving at False Point on the 9th December, but bad weather prevented Lieutenant Hammond commencing work until the 12th. The base having been measured, the necessary stations erected, and the main triangulation having been obtained, a large scale plan of the anchorage was begun on a scale of 6 inches to a nautic mile. On the 28th, however, the steam-cutter broke down, and it was found necessary to haul the boat on the beach for repair; and from this date until the 10th January the work had to be done in pulling-boats. On the 8th February the steam-cutter's connecting rod broke, and the boat was again laid up for six weeks, until a new rod could be sent from Calcutta. Owing to these mishaps, and the extreme labour required in sounding in pulling-boats, the work progressed slowly, and it was not until the 9th March that the survey in this locality, detailed in Lieutenant Hammond's instructions, was completed. Besides the 6-inch plan of the anchorage, the coast as far as 5 miles south of False Point Lighthouse and 10 miles to the north was surveyed on a scale of 3 inches to the nautic mile, the soundings extending to from 5 to 8 miles off shore.

Survey of False Point.

The survey comprised 62 miles of coast trigonometrically laid down, and 120 square miles of water examined.

Survey of Palmyras shoals.

Lieutenant Hammond, finding that the southerly winds were then so strong as to prevent a survey of the south-eastern part of Palmyras shoal, left for the northern portion of the shoal off the Dhumrah river, where he arrived on the 17th March. A base of 5935·4 feet having been measured on Shortt's tripod sand.

sand (the only available dry patch), he commenced the triangulation, putting down buoys seaward and towards Palmyras reef buoy preparatory to sounding the shoals. This occupied a considerable time, as such a heavy sea was running it was found impossible to utilize the steam-cutter, and pulling-boats had to be employed; however, 11 lines of soundings, covering about 4 square miles of water, were taken, but unfortunately, on the 27th of March, as Lieutenant Hammond informed me in the monthly report of proceedings, a heavy gale had swept away all his sounding buoys, blown down the stations and tide-pole, and completely stopped his working, and that as he was quite unable to do anything, he had proceeded inside the Dhumrah river to await orders. He also stated that the greater part of the time was occupied in procuring water, the nearest obtainable being at Chandbally, about 35 miles from the working ground; that a great number of his crew were sick, and in a semi-official letter to Captain Ellis, who was in charge of the office during my absence, stated his inability through ill-health to proceed with the work. He was therefore recalled, and arrived at Calcutta on the 19th April.

Considering the many drawbacks Lieutenant Hammond had to contend with, a delay of five weeks in starting, the small staff employed, the difficulties in obtaining trustworthy men, decent food and water, much sickness amongst his crew, the heavy weather encountered, and the extremely rough nature of the coast, Lieutenant Hammond has turned out a fairly satisfactory season's work.

I am aware of the many disadvantages under which Lieutenant Hammond would labour in a sailing vessel like the "Constance," but I was not prepared for the series of accidents and impediments reported by him, which, however, appear to have been unavoidable. The outturn of work would always be necessarily small when compared with the cost of keeping up a vessel like the "Constance." I therefore represented the matter to the Government, asking that the vessel be removed from the Department, as she had proved quite unsuited for surveying service.

Lieutenant Hammond's health on his return necessitated an application from him to appear before a medical board, and he proceeded to England on six months' sick leave.

Natural History Researches.

Although the time devoted to this branch of the survey was unavoidably short this year, yet I think the results were so far satisfactory, as it has become apparent that when we have a more suitable vessel the Natural History branch will by no means make the least valuable additions to our knowledge of the Indian seas. We have indeed been fortunate in obtaining an officer of Dr. Armstrong's ability and zeal, and I trust, bearing in mind the important additions to science which might confidently be expected from a systematic examination of the *fauna* and *flora* of the Indian coasts and waters, that when arranging the internal fittings of the new surveying vessel which the Government of India have ordered from England, the requirements of the naturalist, especially for deep-sea dredging, &c., may not be forgotten.

Dr. Armstrong has, with very scant means and limited time, made a most interesting little collection, for the details of which I beg reference to extracts from his report (*see* Appendix G.)

A. Dundas Taylor, Commander (late I. N.),
Superintendent of Marine Surveys.

APPENDICES.

(A.)

EXTRACTS from a REPORT on the Ports of BURMA, by Commander *A. D. Taylor* (late I. N.), F.R.G.S., Superintendent of Marine Surveys.

CHITTAGONG.

THE British India Steam Navigation Company's Steamer "Mahratta" called at Chittagong on 9th October; Captain Pollock, being well acquainted with all these ports, passed in between the outer channel buoys, but had to wait there for half an hour, whilst the pilot (native) made his slow way on board in a tub of a boat certainly never intended for pulling.

2. I found the Admiralty Chart, No. 84, very defective; Mr. Pearson's latest survey of the river had not been used for its correction. If the Government of Bengal will supply me with a copy of Mr. Pearson's work, a trifling improvement can be made.

3. But the correctness of the soundings near the river Bar is the most important matter. There the chart seems deficient. The British India steamer "Penang" had, a day or two previously, grounded on a shoal (not on the chart) near the south buoy after she had passed out between the buoys. This question should be looked into by a competent surveyor and the south buoy moved out further if shoal water lies beyond it. The fact is that the Admiralty Chart is wrong, and has been wrong for years, and nobody apparently takes the trouble to mention the matter.

4. For the first time I have now been able to discover that the two lights at Norman Point are horizontally apart about 50 yards, and not, as stated in the Admiralty Light List, vertically eight feet apart.

It is said that the two lights appear in line when a vessel is on the line of shoalest water upon the Bar; but the Bar shifts, and it is reasonable to ask the question,—is one of the lights shifted occasionally?

AKYAB.

The Admiralty chart of this place, No. 1,884, is imperfect and rendered treacherous to navigators, because the Bar buoy is now in a position differing from that given on the chart. This circumstance nearly led the "Mahratta" into trouble on a previous visit to this place in the bad weather of August. The rule was, and still exists in sailing directions, to steer for the highest land of Borongo, and when the Bar buoy is sighted, you steer to pass southward of it and then haul up north a little westerly. This course the "Mahratta" initiated; but, when near the buoy, got a cast of 2½ fathoms (little more than her draught). She had to back out and steer to the southward for more than a mile before hauling up north.

On my visit I took angles and bearings and found the buoy to be placed about a mile to N.N.W. of its assigned position on the Admiralty chart, No. 1,884.

I have already reported (*see* letter, No. 211, dated 30th August 1875) the necessity of a survey of the neighbourhood of Akyab. This would satisfactorily determine the position of the new Oyster Reef Lighthouse and set matters right in these parts.

Colonel Ryan, the Commissioner of Akyab, mentioned the difficulties they have there in the absence of any steamer to go off to ships and to place the buoys in position.

When the Oyster Reef Lighthouse is finished, it would be a great advantage to furnish Akyab with a wooden steam-launch (lifeboat) about 50 or 60 feet long, a good sea-boat.

KYOUK PHYOO.

There is no trade to speak of here. The chart is good, and the dangers bordering the fair channel are marked by buoys. It is rumoured that some of these buoys are to be removed. I trust that this may be prevented. With the aid of these buoys a steamer can safely leave this port now on a moon-lit night.

The Terrible Rocks.—The proposal to put a light on these rocks was lately submitted to Government by the Military (Marine) Department, and the question appears to be now several years old. The trade of Kyouk Phyoo does not call for a light there, and its necessity can only be taken into consideration in a general systematic scheme for lighthouses throughout the Bay of Bengal, which I propose to submit soon for the consideration of the Government of India.

BASSEIN.

The chart No. 834 of the approaches to this place is imperfect, and likely to lead ships into danger. The shoal-water around Diamond Island and the Phæton Shoal has not been properly nor sufficiently sounded and delineated; neither has the anchoring ground lying to the east of the above island. The Northern Channel, leading on round Negrais and Pagoda Point and through to the north of Hingie Island, is reported by the Master Attendant to have shoaled very much of late years, and a ship could *not* follow the existing directions and run in there. But the chart still shows a deep passage; this is highly dangerous, and might lead a vessel to her destruction.

2. The South Red Buoy of the Orestes Shoal (marked on the Admiralty Chart) was more than once or twice washed away. The replacing of it appears to have given trouble, and so now it is not placed there in reality, although shown on the chart.

3. *Danger.*—It is my duty to point out that great danger arises, not so much from removing a buoy, as from the fact that due notice was not formerly given of such removal to the Hydrographer. But it is hoped now that a Government circular may issue to all the marine authorities, informing them of the necessity of constantly reporting to the Superintendent of Marine Surveys any change of position of buoy, beacon, or light.

Again, to allow a deep channel to be shown on the charts where (the fact being locally well known) there is shoal-water betrays negligence or indifference on the part of somebody, which can only be partially palliated by laying the omission or neglect at the door of the incumbent's predecessor—a course adopted by the Master Attendant of Rangoon in the matter of the China Buckeer Light, but a course that should not be allowed. When it is considered that these port authorities are the officials that sit on marine courts of inquiry into wrecks or disasters to shipping, at their own ports or along the coast of the province to which they belong, it may easily be guessed (as pointed out in my remarks upon last year's "Wreck and Casualty Statements," dated 24th July, sent with this office memorandum No. 81, O. M., dated 26th July) how shipmasters are pretty sure to find all the blame falling upon themselves. I shall revert to this subject in another letter upon Rangoon approaches and the survey of the Burma coast.

4. The Bassein river is deep, excellent, and easily navigable. The pilotage question here might be advantageously inquired into. Pilots have shares in a steam-tug, and therefore refuse to take large ships in or out without steam. They can ask what they like. The "Earl of Zetland," a large ship, in October last had to pay 2,200 rupees for being towed up to Bassein, drawing 16 feet, and coming out when drawing 20 feet 6 inches.

5. Going up the river, I found that on the Admiralty Chart the Cockatoo Rocks are shown off the *east*, instead of the *west*, shore. I shall inform the Hydrographer of this, and get the necessary alteration made. I merely mention it to show how little thought has been bestowed upon the amelioration of our charts by men who are well paid for doing something.

RANGOON.

The temporary light-vessel, in lieu of China Buckeer Light, is placed on the Admiralty Chart No. 823 about three miles too far west. This error evidently arose from a lack of perspicuity in the Notice to Mariners issued by the Superintendent of Burma Lighthouses (to which I had occasion to draw the attention of the Government of India in letter No. 153, dated 30th June 1875). And I would here mention that the information sought by me in that letter has never come, and no reply was given to my remarks on that point.

2. The position assigned to the new screw-pile lighthouse, said to have 12 feet at low-water, has three and a half fathoms marked on the chart. If the piles are in 12 feet water really, and the structure has been moved five miles to S.E. by S. ½ S., as stated, it is clear that the old position assigned to China Buckeer Light was in error to the extent of more than one mile. My bearings from the Outer Black Buoy, supposing that to be correctly placed as regards Eastern Grove Light (*see* also paragraph 4), make the above error to be more nearly one mile and a half. This error—at least this supposed error—will soon be substantiated or refuted by the observations that are being made at Rangoon. It may account in measure for two of the British India steamers grounding, with China Buckeer Light bearing N. by W. five or six miles off (*see* Wreck Statement for 1874).

3. The sunken buoy-vessel "Mata Mata" is allowed to lie there about one and a half miles S.S.W. of Fairway Buoy, standing upright on the bottom of the sea; her two masts afford a warning by day, but by night no precautions are taken to mark her position. I have already addressed the Government of India on the subject of the "Mata Mata" in letter No. 282, dated 18th November, to the Under Secretary.

4. The steamer took less time in passing from Fairway Buoy to Upper Black Buoy than was consistent with the distance as shown on the chart, taking the tide also into consideration.

sideration. On arriving at the Black Buoy, I found that the bearing of the China Buckeer old lighthouse differed a *point* from the bearing on the chart. This difference shows that the China Buckeer old lighthouse (and consequently the newly-erected one on screw piles) is considerably out in latitude. We shall soon now ascertain its real geographical position from the officers of the Great Trigonometrical Survey, who have just fixed it.

5. Although Mr. Pearson's survey of Rangoon river in 1866 was lithographed, the Admiralty Chart No. 834 still retains merely Ward's more ancient survey of 1852. The pilots complain that they are prohibited from using a good channel which was shown by Pearson's survey between Elephant Obelisk and Eastern Grove, and which would materially expedite the passage of ships up the river in the south-west monsoon. They are told by the Master Attendant that it is not an authorised channel.*

6. Several excellent beacons are erected along the banks of this river, but they are not exhibited on the charts, because (as stated in my covering letter No. 285) the marine authorities know not how to fix their positions and place them accurately on the chart.

7. The pilot schooner was anchored about two miles to south-east of the Fairway Buoy, but from this position the light of the temporary light-vessel was not visible to the eye without a binocular glass, although barely six miles off. On inquiry I was told that there was no specially responsible man of the Master Attendant's department on board of that hired vessel (hired consequent on the sinking of "Mata Mata," which was originally advertised as a temporary light-vessel) to see to the cleaning and trimming of the lamps. Two lights in fishing-boats, which I observed lying to the east of the old China Buckeer Lighthouse might easily have been mistaken by a stranger for the temporary light-vessel. Burning a blue light every hour is all that distinguishes that vessel, and it is devoutly to be hoped that the new lighthouse will soon be ready.

8. The bank on the eastern side of the entrance, as shown on the Admiralty Chart, differs immensely from the reality. We went into the Rangoon river in the steamer "Burma," on the last of the ebb-tide (date the 22nd October), right over the bank and very close to the place marked "dry in patches," but had not less than 3½ fathoms.

9. As several groundings and losses have occurred during the last two years in the vicinity of Rangoon, it would be interesting to learn what charts were lying open before the marine courts when they gave verdicts against the shipmasters whose vessels had grounded. Perhaps the Government of India may now feel inclined to call for information on this point.

10. I was rejoiced to learn from Mr. Rivers Thompson, the Chief Commissioner, that the assistants of the Great Trigonometrical Survey at Rangoon were about to determine the exact position of the China Buckeer Light.

MOULMEIN.

This river ought to be better managed than any I have mentioned, because, besides a master attendant, Moulmein has a river surveyor and a buoy-vessel. Steam-tugs are always now used here, and this reduces to a minimum the chance of an accident. Of course the Admiralty Chart No. 1,845 was wrong, for the reasons already given—viz., it has been nobody's business to suggest or effect a periodical rectification of the charts.

2. The master attendant, Mr. Dodd, obligingly lent me the chart of Mr. Pearson's survey, executed in 1865. It appears that this was given in by that surveyor to the Moulmein authorities, with the intimation that it was of no use lithographing the chart, because the channels were sure to alter. Thus, there are (I believe) no copies of this work to be found in Calcutta. Of course such a chart is of little value to navigators, but to a survey department it has an important negative value, similar to Rennel's maps of the Ganges and Brahmaputra, as showing, on comparison with a fresh survey, the secular changes.

3. Mr. Pearson's survey of this river, like those of Chittagong and Rangoon, was very incomplete, owing to the desultory and unsystematic manner then in vogue of doing these works. Several of a surveyor's station-marks should be left, and then the gradual changes of the river-bed can be at any time satisfactorily tested by a few angles. Not a single mark exists along the eastern shore for 20 miles above Amherst, but certainly two or three permanent marks should be left and made over to the charge of the shore authorities for preservation. The hills standing about 200 feet high a mile or two to south-east of Amherst are not represented on any charts, although their peaks form (in combination with the pagodas at Amherst Point) admirable leading marks for the river channel and landfall marks for the coast.

4. As stated above, there is a river surveyor here. If his periodical surveys are worth anything,

* It has since been ascertained that no good channel exists in this locality.

anything, we should have copies sent to our department for incorporation in our charts. Although the entrance of Moulmein river requires to be properly surveyed, and to have (as pointed out above) station-marks left there, so that future surveyors may accurately test the changes, yet the means at my command will not permit a survey there during this season.

Conclusion after Inspection.

Seeing that as yet no information has been sent direct, in accordance with the Government of India's letter of 11th August 1875, quoted in paragraph 9 of Government Resolution, constituting the Department of Marine Surveys, by any port authorities, local governments, or administrations, to the Superintendent of Marine Surveys in the matter of lights, buoys, &c., it is suggested that the several governments and commissionerships, and the several native principalities bordering on the sea, should be moved to furnish immediately and periodically to the Superintendent of Marine Surveys the following reports: —

2. Announcing removal, or change in position of, or any accidents to, lights, light-vessels, buoys, beacons, &c.

3. Discovery of any shoal or rock, or of any error in any chart.

4. Disasters to shipping to be duly reported, with the supposed causes thereof; and in case of stranding, a report showing what charts and books of sailing directions were in use on board such ship.

5. Each master attendant or port officer to report whether he considers the system of lighting and buoying his port as good as might be.

6. Each master attendant or port officer to furnish the Marine Survey Department with a copy of the pilotage and port rules in force at their respective ports.

7. Statement of the establishment, in men and boats, employed by the master attendant of each port, showing also the system of pilotage (whether Governmental or private), number of pilots and pilot-vessels, tonnage fees, and estimated tonnage of ships clearing outwards and inwards; also noting whether any, and how many, tug-steamers, public or private, are employed

(B.)

Memorandum by Commander *A. D. Taylor* on Surveys needed along the *West Coast of India*, forwarded to the Government of India with letter No. 172 of 1875, dated 16th April 1875.

Referring to Resolution of the Government of Bombay, dated 28th January 1875 (No. 110, Marine Department), in which the Superintendent of Marine Surveys is invited to state whether he considers it advisable to cause any, and what, surveys to be made along the seaboard of Western India, the following memorandum has been drawn up:—

I.—*Ports on the Western Coast, south of Bombay,* including Goa.*

Batkul (formerly *Baticolo*), the most southern port of the Bombay Presidency, has only been partially examined, and is shown only on the general sheet of the South Canara Coast on a scale of half an inch = one mile. It must, however, be many years before attention can be given to these minor ports.

Honore, *Coomta*, and *Tuddri* are shown on the coast charts with tolerable accuracy. Tuddri is done well on a large scale.

Gungaweli, *Bellikerry*, *Binghi Bay*, *and Anjideva Roadstead*, as ports of little consequence, are sufficiently well delineated for the present trade.

Carwar is well known, but the shifting mouth of the Sedashigar River needs periodical examination; however, the port officer doubtless sees to this. The minor Goanese ports between Carwar and Marmagoa want more examination, but must wait many years.

Marmagoa River.—The entrance is a complete blank; and it would be well to ask the Portuguese Government to give their assent to the execution, by our trained surveyors, of a careful survey of the Marmagoa River entrance, which is one of the west-coast ports of refuge.

Goa. Port has not been thoroughly examined, and the only published chart of that place is on the small scale of half an inch = one mile. Perhaps the Portuguese Government might be persuaded to survey their own ports, including Diu and Damaun. It will be some years before we can undertake any further operations on the Goa coast, and the general charts are sufficient for coasters.

Vingorla

* I do not include in this memorandum any of the Madras ports or Travancore.

Vingorla is so important a commercial port, that the anchorage needs to be most carefully surveyed on a large scale. This is one of the first ports on the west coast which call for examination, but I cannot hold out any hopes of its being done for the next two years.

Malwan requires to be minutely surveyed on a large scale; and the clearing-marks for the Malwan Rock and other dangers need to be ascertained and indicated.

Dewghur.
Viziadroog.
Rajapoor.
Ratnaghiri.

The seven ports as per margin have only been partially surveyed. For the greater security of the large steamers now calling there, they require to be thoroughly done on a large scale. This must, however, be a work of time.

Kalbadevi.
Jaighur.
Hernee.

Jinjera Fort, belonging to the Habshi, has never been thoroughly surveyed, but requires to be.

Chawal and *Alibagh* should also be more accurately done.

Bombay Harbour.—There are various internal portions of this harbour that need to be surveyed to supplement the survey by Lieutenant Whish; but his chart is sufficient for the present. It would be a great service if some one with a knowledge of surveying could (in conjunction with the pilots and master attendant) draw up a new set of marks for working out of and into the harbour, making use of the lofty new buildings, which quite eclipse the old marks.

II.—*Ports on the Western Coast, north of Bombay, including the Gulf of Cambay and the Ports on the Kattywar Coast.*

Gulf of Cambay.—It will be seen (at page 20 of my "Review of Charts and Scheme for Future Surveys") that I consider this as the fifth survey in importance, and to come after that of Sittang River mouth. We now have all the Great Trigonometrical Survey of Kattywar and Goozerat as the groundwork of our new labours. I reckon this survey to commence a few miles southward of the Tapti River mouth, and to extend to a dozen miles westward of Goapnath Point, taking in the Malacca banks. Having the Great Trigonometrical Survey triangulation, we can commence anywhere to survey a portion; and if circumstances (such as a more pressing demand for the services of the surveyors elsewhere) should necessitate breaking off work there, it could be easily taken up again.

With the view of meeting the wishes of the Superintendent of the Bombay Marine, I made a suggestion, in paragraphs 4 and 5 of my letter No. 8, dated Bombay, 3rd February 1875, about employing two Royal Navy officers in surveying the neighbourhood of Kantiajal Creek, with certain means which had been previously arranged by Captain Robinson at an estimated cost. On 23rd February I telegraphed from Calcutta that two trained surveyors could then be sent. Their employment at that time would have been an advantage, but for a more extended survey of the Gulf of Cambay, which should include the Kantiajal Creek, I think we shall probably have to wait three years.

The foul ground off Danoo is the principal portion requiring examination between Bombay and Surat; it is a rocky and dangerous place, but properly avoided on that account. I think, therefore, that nothing will be lost by postponing its examination till the Surveyor-General's operations have extended to that coast.

Agansee and other minor ports may soon demand a more accurate survey.

Damaun, belonging to the Portuguese, is a port that deserves to have a chart on a good-sized scale.

Omersari
Bulsar.
Nowsari.

These three ports, as per margin, and the mouth of the Sucheen River, will call for examination at some distant date.

Koonbunder.
Baoliari.
Soondri.
Bhaonaga.

The mouths of the Tapti, Narbada, Mhye, and Sabarmati are so changeable, that unless annually examined and corrected, their charts would only mislead; and such annual examination would be too costly. They will come in with the Gulf of Cambay survey, which will also include the ports as per margin.

Gogo Roadstead has never been thoroughly surveyed, and should some day be well done by means of a steam-launch.

Shalbet anchorage.
Jaffrabad.
Diu.

Varawal.
Porebunder.
Dwarka.

The same remark applies to the ports as per margin. I have found Captain Grieve's original large scale triangulation survey of the Kattywar Coast amongst the 3,000 old charts condemned to be burnt.

I hope in the course of this year to produce better charts of Kattywar for the use of navigators.

The Gulf of Kutch has ports that may soon require more detailed surveys when coasting steamers call there. The most important are *Seraia* and *Nowa Naga*. *Beyt* may hereafter require a closer examination than was made by me in 1852, but the Admiralty Chart of that place does well for the present.

Mandavee.—

Mandavee.—We have found an original large-scale plan of this place, which may be published on the coast sheets; but, some years hence, Mandavee should be re-surveyed.

The Mouths of the Indus.—Periodical examination of the increasing and shifting banks off the principal mouths of the Indus will have to be made about every ten years; but as this year's survey will not do for the next year, it will be best to warn vessels off that coast.

(C.)

REMARKS by Navigating Lieutenant *G. C. Hammond*, R.N., Assistant Superintendent, 1st Grade, Marine Survey of India, on the LIGHTING of the PORT of *Cocanada*, dated 19th September 1875.

IN reference to the wishes contained in your letter, No. 156, of 1st July 1875, respecting the lighting of the port of Cocanada, I beg to submit the following for your consideration:—

I will answer your questions *seriatim*, as contained in your letter:

A.—*Q.* Whether new light or lights are necessary?—*A.* Two new lights are required.

B.—*Q.* If so, whether lighthouse, pile-light, light-vessel, or both?—*A.* Both lighthouses.

C.—*Q.* What order, description, and elevation?—*A.* Point Gordeware light should be of the first order dioptric, showing a distance of 21 miles at an elevation of about 170 feet; and Cocanada Harbour light should be of the third order dioptric, showing a distance of 10 miles at an elevation of about 70 feet.

D.—*Q.* The exact position to place either, or both?—*A.* Point Gordeware light should be placed just inside high-water mark on the projecting part of the point bearing from the present Hope Island light S. 20 E., and at a distance of 4·7 miles.

Cocanada Harbour light should be at 4·68 miles N. 22 E. from the present lighthouse.

My reason for naming a spot so far to the southward for the Gordeware Point light is, that it might be made use of as a "landfall" light for ships working up or down the Bay of Bengal; and that it might be utilised also to point out the Sacramento Shoal, which would then lie about 16 miles in a S.S.W. direction (the bearing and distance approximate, as it has not yet been surveyed), a red shade being inserted on the danger bearing; by using a similar shade, throwing the light between the bearings N. by W. to N.N.E., would assist a vessel in keeping clear of the N.E. part of the Spit, as the latter bearing cuts the present 10-fathom contour abreast the Outer Buoy.

Not having any boring tools, I am not in a position to give the nature of the ground for a foundation; but I found sand to a depth of about six or seven feet, and I think the stone, &c. necessary, both for a foundation and the lighthouse itself, might easily be obtained a short distance up the River Godavery, a branch of which runs close at the back.

At this point also the water appears to run out shoal for a considerable distance, no doubt in bad weather causing a considerable sea. From information I gathered from the lighthouse-keeper at Hope Island, ships have, several times, reported a separate shoal some two or three miles off this position of the coast; but from observations I made on the beach, and again from the summit of Hope Island light, I could see nothing detached, and I think the reports must have arisen from the vessels having been too close in-shore to the southward, and having seen the broken water off this point: therefore, a light in this position would greatly assist a vessel in keeping clear of any danger lying off.

My reasons for thinking a shore-light will be the best for Cocanada are—

1st. If it is constructed with an iron-pile framework, it can easily be moved as the bay fills up; and, being on shore, it will not have the extra risks which a light-vessel would have to encounter, such as vessels fouling her, or being driven from her moorings.

2nd. It will eventually cost less than a good light-vessel.

3rd. I think at the position marked on my plan an excellent foundation will be found, besides allowing plenty of room for the keepers, dwellings, storehouses, &c.

This light also might be fitted with a coloured shade, to enable a vessel to keep clear of the north part of Gordeware Point—viz., from S. 51 E. round to the southward, the point having grown out in a N. E. direction during the last 2½ years about two miles, one mile and a half of which has accumulated since your survey in 1857. I think it would be advisable that the coloured shade should be made to shift if necessary, in order that, as the point grows out to the northward, the bearing of the coloured light might be altered also.

With such a light as mentioned above, I venture to think the convenience of the port

would be better served than by having a pile-light, as suggested by Colonel Fraser, R.E. (I have marked in my plan the position suggested for the pile-light, as shown to me by the lighthouse-keeper at Hope Island), or a light-vessel, as suggested by Mr. Robertson, harbour engineer.

My objection to a pile lighthouse in such a position is, the tremendous action of the breakers, with an on-shore gale, against such a structure, taking into consideration the undertow and the foundation, which, I think, would not be found very good; and, again, it would have to be shifted to the N. E. as the land grew out in that direction, or otherwise it would eventually be somewhere inland, like the present Hope Island light, and consequently would become as useless.

With respect to a light-vessel, I see only one thing in its favour, and that is, it would be cheaper in the long run; against such a light there are several grave objections, viz.:—

If it should be moored to mark the north end of Point Gordeware in five fathoms (somewhere near the present inner harbour buoy), it would have to contend with a very nasty, short, choppy sea, caused by the freshes (at this time of the year) coming out of the Godavery, meeting the wind and sea brought up the coast by the S. W. monsoon; and again, vessels standing in or out have to keep their luff, and shave the point as close as possible, to avoid being set to leeward, thereby entailing a chance of fouling.

I think a light-vessel, moored in such a position, would be safe, as far as holding is concerned, even in a cyclone; the only danger being her parting, occasioned by a sudden jerk on the cable, owing to the heavy sea which would then be running. I am told the worst quarters from which it blows are N.E. and S.W. If she parted, with the wind at N. E., she would drift in, about W.S.W., through very soft mud, which would also act as a sort of breakwater; and if it came from the southerly quadrant, she would be blown out to sea.

Again, if the light-vessel was moored somewhere in the middle of the roadstead, I am afraid it would occasionally be taken for a ship at anchor, thereby rendering it nearly useless as a light-vessel, and it would still run the chance of being fouled.

I am afraid I can give you very little useful information respecting Cocanada Bay as a holding-ground in a cyclone. I only heard of one casualty from such a cause, and that occurred some 15 years since to a native craft, and the accepted idea is, she was lost through defective ground-tackle. It is said there is very little sea except off the Spit, considering what one would expect on a lee-shore in a cyclone; and the best thing a ship can do is to give a good scope of cable, and drop a second anchor under foot, and then let her drag through the soft river-mud, which comprises the bottom of the bay; by so doing, a properly equipped vessel, with a decent crew, ought not to come to any great harm, except in the case of small vessels, which generally get everything swept off their decks. Hoping that my remarks on the lighting of the port of Cocanada will meet with your approval, &c.

(D.)

REPORT upon certain Proposals for a Reorganisation of the RIVER HOOGHLY SURVEY, drawn up by Commander *A. D. Taylor*, late I.N., Superintendent of Marine Surveys (dated the 19th February 1875).

1. AN elaborate and scientific survey of the whole tidal basin of the Hooghly River, or at least from Chandernagore to the Sandheads, is most certainly required, and should be executed as soon as possible. Indeed, it is a great pity that the recommendations of the Committee of 1854 were not acted upon—viz., that "*minute and periodical surveys of the whole length and breadth of the river from Calcutta to the sea are necessary*," because the charts of the present survey were found "*altogether insufficient for engineering purposes*."

2. More than 20 years have passed away, and we have still to deplore the omission of any such scientific survey. We are left to guess what changes may have taken place, and the causes of those changes. Shall we bequeath to another generation this important work, and our regret that it had not been begun many years previously?

3. The unscientific method of the existing river survey, the counterpart of that which was executed by Captain R. Lloyd, of the Indian Navy, nearly 40 years ago, with its imperfect *matériel* and rough *personnel*, and consequently unreasonable cost, is denounced by any hydraulic engineer who comes in contact with such primitive work. "The resulting charts are altogether insufficient for engineering purposes, and will be of little or no assistance hereafter in determining the causes of change or deterioration in the river."

4. I have no desire to depreciate the labours of the river surveyor, which are confined to ascertaining and recording the navigable channels. I believe his work to be executed on the basis and principles adopted by the old Indian Navy surveyors when taking the off-shore soundings along a coast and in the harbours of Asia. But those surveys were merely preliminary. We now know that for accurately delineating river-channels nothing but sectional sounding in steam-launches will suffice. Drifting about in a row-boat at the caprice of the tidal stream, and dependent upon the varying speed attainable by

by a dozen weak rowers or a fitful wind, the cleverest marine surveyor could not produce work that would stand the criticism of a practical harbour engineer.

5. With such convictions it becomes my duty to declare that I cannot endorse the opinion of the officiating Master Attendant in paragraph 5 of his letter, No. 4219, dated 2nd July 1875, to the Government of Bengal. The state of the channel, sands, and bed of the river cannot be ascertained by "trigonometrical measurements" made annually and from time to time. Measurements to ascertain the configuration of the foreshore, leaving *pucka* bench-marks by levelling all the way from above Calcutta to at least Diamond Harbour, should be accurately made once for all, embracing as shore-marks all lighthouses, flagstaves, beacons, obelisks, temples, houses, and remarkable objects; whilst other permanent station-points, boundary pillars, and tidegauge stations should be left near the river margin and on some of the large sandbanks which are uncovered at high-water of neap-tides.

6. The assertion that the present surveys are "*all that can be desired for information, so far as the bed of the river, its channels and sands are concerned, either for engineering or navigating purposes*," cannot be accepted as correct in the face of the following fact. *The inclination of the bed* of the Hooghly River has never* yet been determined, and can only be determined by an accurate series of levels taken from above Calcutta to below Diamond Harbour (say, to Rangafulla). Proper measures for determining this *slope of the river bed* must be adopted before any design for improvement can be formed, and (I would add) before the soundings taken can be properly reduced to any correct datum levels.

7. Tidal observation stations are now few and far between. The soundings taken (for instance, between Diamond Harbour on the one shore and Diamond Point on the other), whether reduced by the Hooghly Point's tidegauge or by that of Middle Point below Rangafulla Obelisk (which gauges are 20 miles apart) will differ several feet. *Intermediate stations* for tidal observations must be multiplied to ensure anything like accuracy in our plans of the river. At stations several miles apart, the times of high and low water will surely be found to vary much, the difference being due at times more to the state of the wind than to the fact of the tides being neap or spring.

8. I would ask the Government of India to inspect the chart of the survey of the James and Mary Shoals, executed between mid-April and mid-May of last year by the officers of the "Guide," and to compare it with any of the river surveyor's charts of the same spot. Soundings can only be correctly taken *sectionally* in a river, after erecting section poles. With such poles, placed as fixtures abreast of channels where frequent changes take place in the bed of the river, these sectional soundings may be repeated day after day or week after week, and changes in the channels immediately made known to the pilots. This is what the pilots want. And for this purpose I highly approve of Mr. Chitty's proposal to have a central office for completing the plotting and drafting of charts by the surveyors at Diamond Harbour.

9. The proposals of Mr. Chitty and the Port Commissioners both indicate the importance and necessity of having distinct surveying services for the portions of the river *above* and *below* Diamond Harbour. The one is purely river work, the other is distinctly sea work. Not having had the opportunity I expected of going down river in the "Celerity," to make more inquiries on the spot, I see nothing at present to modify the view of the question which I have entertained for some weeks past—*i.e.*, that a combination of the schemes proposed by Mr. Chitty and the Port Commissioners commends itself.

10. The officiating Master Attendant says (paragraph 13) "steam-launches are of little or no use below Diamond Harbour, except in the very finest weather." But Mr. Chitty defines the kind of steam-launch he would employ in paragraph 4 (*f*) of his letter, dated 26th January 1871, as "*capable of going to Saugor anchorage in the south-west monsoon*," and having "*comfortable arrangements for surveying officers forward.*" Two steam-launches of that description would, in my opinion, amply suffice, along with the steam-buoy vessel and surveying vessel combined of about 300 tons (*see* paragraph 11 of Port Commissioners' scheme, dated 17th April 1875), to do all the sea section surveying work, *without* the first steam river-surveying vessel, as stated to be required by the officiating Master Attendant and River Surveyor in the letter of Bengal Government (Marine), No. 449, dated 12th February 1875.

11. It is presumed that the "Celerity" will still be available to assist in the work pointed out by the officiating Master Attendant in paragraphs 16, 17, and 18 of his letter No. 4219, dated the 2nd July 1875. If the "Celerity" be available, I venture to think that the large steamer of 250 tons would not be required, and I state this with a full knowledge of what is said in paragraph 18 (just alluded to), that "*there can be no hope of this additional duty being accomplished with a flotilla, as suggested in the Port Commissioners' scheme.*"

Amongst

* A series of levels has since been taken and bench-marks left by the Irrigation or Revenue, Survey Department.

12. Amongst the correspondence concerning the River Hooghly survey, I find that the Government of Bengal has represented to the Government of India (*see* letter No. 561, Marine, from the Secretary of Bengal Government, dated 22nd February 1875) the absolute necessity of having a *second* steam buoy vessel and surveying vessel combined, for the purpose of the buoyage of outports under the Government of Bengal. I am therefore decidedly of opinion now that two such steam buoy vessels will best subserve the interests of both the surveying and buoying work for the Hooghly and outports, and that the proposed steamer of 250 tons would then be a superfluity.

13. I think it would be well that a committee of practical land and marine surveyors should go into this subject before a final decision be made as to reorganisation. But the important preliminary work which I have indicated in paragraphs 5 to 7 should certainly be commenced and carried out at once by land-surveyors. Much advantage will result from having it done before the vessels are ready to undertake the sounding.

14. In conclusion, I would observe that the printed statement of the Port Commissioners, showing the "present and proposed scale of establishment," seems carefully and correctly drawn up, and their proposed vessels would be competent to perform the two sections of survey work which I have indicated in paragraph 9 above.

(E.)

REMARKS by Navigating Lieutenant *F. W. Jarrad*, R.N., Deputy Superintendent of Marine Surveys, 2nd Grade, on the LIGHTS and BUOYS in the Approaches to RANGOON RIVER, dated 29th May 1876.

WITH reference to the light at Eastern Grove—this light is visible between North and N.E. by E. ½ E.; it, however, is supposed to show more brilliantly, over an arc of 10°, between the bearings of N.N.E. and N.N.E. ⅞ E. nearly, for the purpose of indicating the fairway channel; but the increase in brilliancy is so very gradual as to render it impossible to define the limits of the arc of greatest brilliancy with any certainty. I would, therefore, suggest that the light should be coloured red over the Eastern and Long Sands, that is, between N. and N. by E. ¼ E., and also over the Spitsand, that is, between N.N.E. ⅛ E. and N.E. by E. ½ E., leaving a bright white light between, over an arc of 10°, to indicate the fair channel. A vessel then approaching the banks on either side would, immediately on seeing the light change colour, become aware of her danger. At present, as I have already stated, the change from a bright light to a brighter ray is not sufficiently apparent to be of any practical utility for giving warning of a vessel's proximity to danger.

If the above proposal were carried out, the Eastern Grove light could then be utilised as a leading light for vessels leaving the river; otherwise it is of very little value, as, now that China Buckeer light has been placed in its new position, the China Buckeer light becomes the landfall light for Rangoon river.

2. With reference to the light on China Buckeer flats:—

The western limit at which the China Buckeer light is at present cut off allows the light to show over the banks off the mouth of the *To-Kwa* (China Buckeer) river. This may lead a vessel into danger, more particularly until the exact limits of the light are universally known. I would recommend that the limit be altered to N.E., instead of N.E. by E. ⅛ E. Had a careful survey of the locality been made before the position of the China Buckeer light was decided on, it would have been apparent that it should have been placed one mile farther to the south-west than it now is. A vessel then making the light and steering for it could not, as long as she kept it in sight, get into danger.

With the present arc of visibility, should a vessel approach the light on a bearing east of N.N.E. ¼ E., she would be in great danger of taking the ground on the sand-banks to the south-west of the light. I would also draw attention to the fact that, apparently, the Marine Survey Department was not referred to for an opinion on the subject before the new position of the light was fixed upon, or the arc of visibility determined.

3. With regard to the buoying, I have noticed that no uniform system of buoyage appears to be carried out in India; and I beg leave to draw your attention to the great disadvantage of placing buoys in a channel the colour and construction of which do not at a glance convey an idea of the general nature and position of the dangers which they mark. I would therefore suggest that a uniform system of buoyage should be introduced, assimilating as nearly as possible with that used by the Corporation of the Trinity House, London, and that this system should be compulsory in all ports and rivers of British India.

4. With the above object in view, I respectfully suggest the following alterations being made in the character, &c. of the buoys at the entrance to Rangoon river:—

(*a*) That the present Fairway Buoy be called the "Outer Buoy" (as it undoubtedly is), and that the name "Outer" be painted on it.

(*b*) That

(*b*) That the present Outer Buoy be called "Fairway," it being placed in the Fairway Channel, and the name be painted on it as above: both the buoys, as well as the Spit Buoy, should be conical in shape, and larger than those now in use.

(*c*) Referring to the accompanying tracing,* it will be seen that the position marked A, close to the edge of the Long Sand, requires to be buoyed. It is one of the most dangerous spots in the channel; several vessels have been lost there, and the hull of one is still to be seen at low-water. I would therefore propose that an additional buoy be placed in the channel to mark this spot. * Not published.

(*d*) The present position of the Northern Black Buoy is not a good one, as it leaves the edge of the shoal-water in the narrowest part of the channel unmarked. I would suggest the desirability of shifting this buoy to the position marked B.

(*e*) I also propose that the northern red buoy be shifted to the position marked C; at present it is too close to the Spit Buoy to be of any use.

5. Before making the above alterations in the buoys, I would urge the necessity for at once deciding on a system of buoyage, as before mentioned.

(F.)

EXTRACT from a LETTER of Proceedings from Navigating-Lieutenant *F. W. Jarrad*, R.N., F.R.G.S., Deputy Superintendent, Commanding I. G. Surveying Steamer "Clyde," describing the Coast between *Akyab* and *Cheduba Island* (dated Calcutta, 10th May 1876).

1. ON the 1st of April the surveying work received a sudden check, caused by the appearance of cholera on board the ship, resulting in the lamentable death of Sub-Lieutenant C. George, the particulars connected with which were reported in my letter, No. 89, dated 4th April.

2. Several of the officers and men were attacked with similar symptoms, and to prevent, as far as possible, the epidemic spreading, a camp was formed on shore for the greater part of the crew. The ship was fumigated and cleaned throughout. As soon as Dr. Armstrong pronounced it safe, the men returned on board, and after filling up with coal, &c., I left on the 10th April, in accordance with the instructions conveyed in your letter, dated 5th April, for a cruise to the southward.

3. From the 10th to the 14th the ship was sounding and dredging between Akyab and Cheduba Island. I also took the opportunity of testing the accuracy of the chart between Kyouk Phyou and Cheduba, and found that the coast, as shown on Admiralty Sheet, No. 821, is out of bearing. There was also evidence of a considerable change having taken place in the depths in the channel between Cheduba and the Ramree Island since the last survey. The weather was not fine enough, neither did time admit of my making any close examination for the purpose of correcting the above very visible inaccuracies. The whole of this coast requires to be re-surveyed in a rigorous manner, and for this purpose a more suitable and better-equipped vessel, and also a more efficient staff than that on board the "Clyde" at the time, would be necessary.

4. On the 13th the ship was dredging the whole of the day close to the Terrible Rocks. The heavy westerly swell which we experienced on this coast during the whole of the month prevented my landing on either of the groups. I am, however, of opinion that should the necessity for a light on these dangers arise at any future time, the North Terrible would be the best site, as it is more easily accessible, and a vessel could anchor nearer to it than she could to the south group. It would appear, however, that at present the necessity for a light in the Terrible does not exist, as there is hardly any traffic in their vicinity.

5. The weather was so threatening on the night of the 13th, that I deemed it advisable to seek shelter, and I therefore steamed into Southampton road, Kyouk Phyou.

6. On the 14th the weather still looked wild, and there was a very heavy swell from the westward, preventing any possibility of my landing on the Terribles; and as I had found the main points on Admiralty Chart No. 821 so relatively out of position as to preclude any possibility of my plotting deep soundings on it in a satisfactory manner, I so far departed from your instructions as to relinquish the sounding, and determined on examining the harbour of Kyouk Phyou.

7. Between the 15th and 24th this examination was proceeded with, the main triangulation of the harbour was obtained, the buoys fixed, and the Bombay and Reliance shoals examined. I am plotting this on a dry proof of the published plan, and when it is completed, shall be able to inform you whether the coast and main points on the present plan are delineated with sufficient accuracy so as to necessitate only the re-sounding the port, or whether the whole plan requires reconstructing. Should the latter prove necessary, I can at once prepare the sheet. Information regarding the position of the buoys, &c., I have already furnished to your office.

8. Dr. Armstrong will furnish a *résumé* of the dredging operations. I believe new species of crustaceans and also shells have been found.

9. On the 24th I called at Akyab for letters, and left, in accordance with your instructions, at daylight on the 25th for Calcutta, arriving here on the 28th; *vide* my letter, No. 93, dated 28th April.

(G.)

EXTRACT from the REPORT of Surgeon *J. Armstrong*, B.A., Indian Medical Department, Surgeon and Naturalist to the Marine Survey of India.

1. THE present Report is intended to be merely an outline sketch of the operations undertaken during the season in connection with my duties as naturalist attached to the Marine Survey. I propose to give only a general idea of the nature of the ground over which the work of the season extended, and I will not attempt, therefore, in this place to give any technical classification or description of the fauna of any portion of the different districts which were visited. A detailed account of the genera and species met with is in course of preparation for publication in the Asiatic Society's Journal, and will shortly appear therein.

2. All the shells which were collected during the season have been handed over to Mr. Nevill, of the Indian Museum; while the entire collection of crustaceans, which form one of the most numerous and interesting groups of animals belonging to the marine fauna, has been placed at the disposal of Mr. Wood-Mason for identification and description, that gentleman having long made this branch of the invertebrates his special study. I have reserved to myself all the ornithological specimens, as well as all the hydroid zoophytes which have been collected, and trust soon to complete a description of the most remarkable of these interesting groups.

3. During the months of December, January, and February, our work was necessarily confined to the vicinities of the Rangoon River, between the Grove Lighthouse on the east, and China Buckeer on the west, embracing altogether a coast-line of about 30 miles in extent. The marine zoology of this region is extremely scanty: the great rapidity of the tides, the brackishness of the water, and the enormous amount of mud and fine sand which is held in suspension by the water, and is constantly being deposited by subsidence on the bottom, are the factors which most powerfully co-operate to prevent the development and retard the growth of the marine fauna in this district. The littoral fauna, on the contrary, is abundant. Numerous species of crabs and other crustaceans are to be found along the beach and in the tidal swamps which border a portion of the shore, while the broad and extensive mud flats, which at low-water are left uncovered, afford choice feeding-ground for multitudes of shore-birds of different species—such as *Squaterola Helvetica, Charadrius longipes, Ægialitis Geoffroyi, Ægialitis mongolicus, Ægialitis cautianus, Ægialitis Philippensis, Lobivanellus goensis, Œdicnemus crepitans, Terekia cinerea, Numenius arquatus, Numenius phæopus, Tringa subarquata, Tringa minuta, Tringa platyrhyncha, Eurynorhynchus pygmæus, Actitis hypoleucos, Totanus glottis, Totanus calidris*, and others, including a hitherto undescribed species of *Totanus*. Of each of these specimens have been secured and preserved.

4. Commencing at about two miles to the westward of Elephant Point, and reaching up to China Buckeer river, the coast is fringed by mangrove and tidal jungle, amongst which *Sonneratia apetala, Ceriops Roxburghiana, Clerodendron inerme, Hibiscus tiliaceus, Acanthus ilicifolius, Derris scandens, Flagellaria indica, Grewia microcos, Glycosmis pentaphylla, Basella alba, Jasminum scandens*, &c., are most conspicuous. A little inside this tidal jungle, and separated generally by open waste ground, are broad belts of savannah forest running more or less parallel with the shore, and in many places quite impenetrable by reason of thick thorny underwood. These belts of forest trees and thorny underwood give shelter to numerous birds, amongst which various species of parrots, woodpeckers, and drongoes, as well as pigeons and doves, are the most characteristic, while the mangrove jungle bordering the shore swarms with different varieties of herons, and glitters with the gorgeous plumage of kingfishers and bee-eaters.

5. In March we left Rangoon and proceeded to Akyab, sounding and dredging several times on the way, and with results which, on the whole, were very satisfactory. Off Cape Negrais, on each occasion upon which the dredge was used it was brought up filled with a slate-coloured tenacious mud, amongst which a single rare crustacean (*Raninoides lævis*) was found, as well as large quantities of dead pteropods of different kinds. In the more immediate vicinity of Akyab the ground was much more prolific, and abounded in numerous species of echinoderms and crustaceans; several rare and beautiful hydroids and other zoophytes were also obtained.

6. Long before the contemplated work at Akyab was completed, an outbreak of cholera on board, resulting in the death of one of the officers, made it necessary to leave that port, where the disease was at the time epidemic, and it was then intended to devote some little time to dredging in the vicinity of Cheduba and in the neighbourhood of the Terrible Rocks. Unfortunately, however, in consequence of unfavourable symptoms appearing

appearing in the weather, it was found impossible to carry out the dredging operations to the extent which had been originally intended, but, nevertheless, enough was done to show that this entire region is extremely rich in many interesting forms of animal life, and would well repay a more careful examination at some future time. While dredging in the vicinity of the Terrible Rocks, it was found that there is in this region a remarkable formation of bottom, in which, though unaccompanied by any change in the depth of the water, there is an abrupt transition from rock and gravel to a slimy oozy mud, indicating probably the existence of some localised submarine current.

7. I deem it my duty to bring prominently to notice that, having regard to the working capacity of the Natural History section of the Marine Survey, it is quite impossible to carry into execution the scheme of deep-sea dredging which was originally proposed by the Council of the Asiatic Society, and which has received the cordial sanction of Government. Without machinery of any kind, or any steam-power available for hauling in sounding or dredging gear, it is quite useless to attempt to dredge at any depth exceeding 90 or, at the outside, 100 fathoms, and thus valuable opportunities are lost of making any systematic or serial observations upon the various currents and temperatures of the Indian seas, or of investigating the physical character of the sea-bottom.

8. All available time has therefore of necessity been devoted to the investigation of the zoology of the shallower water; but even in this limited field, owing to the short time at our disposal for the work, and the consequent desultory and disconnected nature of the observations made, a maximum of useful work has not been effected.

9. I would accordingly venture to suggest that opportunities may be afforded for a more systematic and definite zoological investigation of the shallower water than was practicable this season, and, with this object in view, I would recommend that a certain definite period, of not less than seven days in each instance, should be devoted to a careful zoological examination of each district where the surveying operations are at the time being carried on, the length and choice of time being left entirely to the discretion and convenience of the commanding officer. In this way the zoological faunas of definite areas would be tolerably correctly ascertained, and much more valuable results might be expected from such methodical working than from isolated and disconnected dredging carried on at more or less remote distances from each other.

(H.)

SYNOPSIS of the Result of the OBSERVATIONS made for determining the MERIDIAN DISTANCE between *Elephant Point* (*Obelisk*), *Rangoon River*, and *Amherst Point Pagoda* (*Flagstaff*), between the 22nd February and 2nd March 1876.

	STANDARD.	A.	B.	C.	D.	E.	F.
	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.
Errors at Elephant Point on 22nd February 1876	6 19 30·615	0 34 31·385	5 27 59·885	5 03 26·615	4 31 57·115	4 03 41·115	2 39 57·115
" " 2nd March 1876	6 19 06·833	0 35 41·617	5 28 06·617	5 04 47·383	4 31 09·883	4 02 12·883	2 38 32·383
Rate in 9 days (Harbour and Travelling)	23·782	1 10·232	0·6732	1 20·768	47·232	1 28·232	1 24·732
Harbour rate in 5 days	13·573	39·072	03·572	0 47·428	27·072	0 49·072	48·072
Travelling rate in 4 days	10·209	31·160	3·160	33·340	20·160	39·160	36·660
Daily travelling rate	2·552	7·790	0·790	8·332	5·040	9·790	9·165

Meridian Distance from Elephant Point Obelisk to Amherst Point Pagoda.

Errors at Elephant Point on 22nd February 1876	6 19 30·615	34 31·385	5 27 59·885	5 03 26·615	4 31 57·115	4 03 41·115	2 39 57·115
Two days' travelling rate	—5·104	+15·580	+1·580	+16·664	—10·080	—19·580	—18·330
Errors on 24th February (brought up)	6 19 25·511	34 46·965	5 28 00·465	5 03 43·279	4 31 47·035	4 03 21·535	2 39 38·785
" " at Amherst Pagoda	6 24 20·597	29 52·403	5 23 05·903	5 8 40·097	4 36 42·097	4 8 16·597	2 44 33·597
Meridian distance	4 55·086	4 51·562	4 55·562	4 56·818	4 55·062	4 55·062	4 54·812

Meridian Distance from Amherst Point Pagoda to Elephant Point Obelisk.

Errors at Amherst Pagoda on 29th February	6 24 07·025	30 31·475	5 23 09·475	5 09 27·525	4 36 15·025	4 07 27·525	2 43 45·525
Two days' travelling rate	—5·104	+15·580	+1·580	+16·664	—10·080	—19·580	—18·330
Errors on 2nd March (brought up)	6 24 01·921	30 47·055	5 23 11·055	5 09 44·189	4 36 04·945	4 07 07·945	2 43 27·195
" " at Elephant Point	19 06·883	35 41·617	5 28 06·617	5 04 47·383	4 31 09·883	4 02 12·883	2 38 32·383
Meridian distance	4 55·038	4 54·562	4 55·562	4 56·806	4 55·062	4 55·062	4 54·812

Meridian Distance from Elephant Point to Amherst.

	H.	M.	S.
STANDARD	0	4	55·086
A	0	4	54·562
B	0	4	54·562
C	0	4	56·818
D	0	4	55·062
E	0	4	55·062
F	0	4	54·812
			386·964
Mean Meridian distance	0	4	55·280

Meridian Distance from Amherst to Elephant Point.

	H.	M.	S.
STANDARD	0	4	55·038
A	0	4	54·562
B	0	4	55·562
C	0	4	56·806
D	0	4	55·062
E	0	4	55·062
F	0	4	54·812
			386·904
Mean Meridian distance	0	4	55·272

Rangoon River,

F. W. Jarrad, Navigating Lieutenant, R.N.,
Commanding I. G. S. S. "Clyde."

(I.)

STATEMENT showing the COST of the MARINE SURVEY DEPARTMENT from the 1st April 1875 to the 31st March 1876.

PARTICULARS.	Amount of each Item.	Total of each Heading.
	Rs. a. p.	*Rs. a. p.*
Superintendent of Marine Surveys	21,600 – –	
Superintendent, Drawing Branch	7,959 10 11	
Office of Superintendent of Marine Surveys	4,325 13 2	
		33,885 8 1
Contingent Charges :		
Travelling expenses on inspection journeys	1,293 – –	
Contingencies	3,089 10 6	
		4,382 10 6
Scientific Officers :		
Scientific Officers	44,965 9 3	
Allowance to one Surveyor as Draughtsman	600 – –	
Medical Officer and Naturalist	4,800 – –	
House-rent to Officers	6,298 7 2	
		56,664 – 5
Executive Officers :		
Executive Officers	7,295 7 10	
		7,295 7 10
I.G.S.S. " Clyde."		
Wages of Crew	18,440 7 9	
Contingencies	1,327 15 –	
Provisions	1,995 11 –	
Stores	3,461 2 9	
Repairs	2,186 – –	
Coal	2,713 12 –	
Travelling expenses of portion of " Clyde's " crew to Bombay.	976 4 –	
		31,051 4 6
I. G. Schooner " Constance."		
Wages of crew*	13,212 11 3	
Contingencies	1,016 8 –	
Provisions	1,924 7 10	
Stores	3,140 – –	
Repairs	496 – –	
Coal for steam-cutter attached to " Constance "	167 – –	
		19,956 11 1
I.G. Brig " Guide."		
Wages of crew	7,458 9 4	
Contingencies	433 2 –	
Provisions	608 – –	
Stores	1,695 – –	
Repairs	1,257 – –	
		11,451 11 4
I.G.S. " Lady Lawrence."		
Wages of Crew	968 6 8	
Contingencies	16 – –	
Repairs	98 – –	
		1,082 6 8
Steam-cutters.		
Coal	20 – –	
Repairs	982 – –	
		1,002 – –
GRAND TOTAL		1,66,771 12 5

* Pay of Executive Officer is not included in this.

A. D. Taylor,
Superintendent, Marine Surveys.

(J.)

PROGRAMME of WORK to be undertaken by the MARINE SURVEY DEPARTMENT during the ensuing season of 1876-77. (Extract from letter, No. 476, dated 28 June 1876.)

The "Clyde" to leave Calcutta on 1st November for Amherst (Moulmein river), calling *en route* at Diamond Island (Bassein river), for the purpose of obtaining observations to enable a meridian distance to be measured between the above island and Amherst Point Pagoda. This will connect, astronomically, Diamond Island, Rangoon (Elephant Point Obelisk), and Amherst Pagoda—the three principal positions in the Gulf of Martaban about which there is uncertainty, whereas correct meridian distances are essential to the reproduction of a new chart of that locality.

2. On arriving at Amherst, I propose that a survey of the approaches and entrance to the Moulmein river be executed on a scale of 2·5 inches to the nautic mile. The present chart of Amherst and the Moulmein river entrance is from a sketch executed by Lieutenant Fell, I.N., so far back as 1842. It is so incorrect as to be quite inadequate for the present requirements of, if not dangerous to, navigation; and after personal inspection of the place in April last, I came to the conclusion that no large port in India so much requires a new and correct chart. This duty will probably occupy the "Clyde" until the middle of January.

3. After completing the survey of Amherst, the "Clyde" should leave for Diamond Island, re-measuring the difference of longitude between Amherst and the Island, thus determining the latter position with regard to the former by the most rigorous method.

4. The survey of Akyab, which was commenced by Lieutenant Jarrad and his assistants last season, was suddenly stopped by an outbreak of cholera on board the "Clyde," which resulted in the death of Sub-lieutenant George, R.N., the senior assistant. The health of the officers and crew was so unsatisfactory as to cause me to order Lieutenant Jarrad to suspend his operations at that port. He had, however, obtained the main triangulation, and I propose that the "Clyde" should, after obtaining observations at Diamond Island, proceed to complete the survey of Akyab Harbour and its approaches.

5. I would suggest that on the way there the "Clyde" should visit and examine the entrance to Sandoway river. The Chief Commissioner of British Burmah has addressed me on the subject, and forwarded a correspondence from Colonel Sladen, the Commissioner of Arakan, urging the desirability of such an examination, and pointing out the great inconvenience caused to the public service on account of the mail-steamer anchoring outside the bar, when it is believed, from local report, that they could anchor inside the river. Without a chart, however, it is but reasonable that the commanders of the mail-steamers should object to risk the safety of their vessels. I therefore quite concur with Colonel Sladen that there should be, as soon as possible, a survey made of this locality. This service would occupy about a fortnight.

6. The survey of Akyab will embrace the Oyster Reef and Heckford Patch, and includes a much larger area than that originaally contemplated, and it will probably require at least two months to complete. Should time admit, I propose the "Clyde" should then proceed to Kyouk Phyou, and continue the work commenced there last season. A part of the time would be devoted to dredging in each locality.

7. The "Constance" is so ill-adapted for surveying service in every way, that I think it most undesirable to fit her out again. I therefore propose that this vessel be removed from the marine survey, and will address the Government on the subject in a separate letter. The saving effected by this measure will furnish more ample funds than we require for the useful operations mentioned in the next paragraph.

8. My visit of inspection to the Mergui Archipelago clearly shows to me that by the aid of additional soundings and an examination of the dangers contiguous to the navigable channels (which, though well known to the Chinese pilots and native fishermen, are not laid down on the Admiralty Charts), the existing charts would suffice for the immediate requirements of commerce and navigation. With this object in view I made inquiry of the British India Steam Navigation Company what would be the hire of one of their small steamers for two months, from middle of January to the middle of March. They give the approximate cost at 20 rupees per ton, which is too high. I would therefore propose to utilise the "Ava" steamer,* attached to British Burma, when, with one assistant to accompany me, I could undertake to complete all that I consider is at present absolutely necessary in that locality. Ultimately, as trade increases, yet not for many years, a more rigorous examination would of course become necessary. An estimate of the

* Since reported as unseaworthy.

the cost may be given after I have been able to communicate with the Chief Commissioner of British Burma or the Master Attendant of Rangoon, if the sanction of Government be accorded to my doing so.

9. There would, on the above cruise, be a good opportunity of dredging and for various researches in natural history; and should the Government approve of this part of my programme, I propose that Dr. Armstrong, the naturalist attached to the "Clyde," should accompany me for the purpose of investigating the fauna and flora of these hitherto but little known islands.

10. I have also to ask for the sanction of the Government to my visiting, with a view of ascertaining the immediate wants as regards navigation, all the ports on the Coromandel Coast which are touched at by the British India Steam Navigation Company's vessels from False Point southward as far as Tuticorin, or perhaps up to Beypore. I would then be in the same position to give an opinion on any nautical question relating to either lighting, buoying, or the general navigation of this east coast of India, as I am concerning the west coast from Beypore northwards, and with respect to the Arakan, Pegu, and Tenasserim coasts which were visited by me recently.

11. Should his Excellency approve of the above proposal, I would propose to leave Calcutta in one of the steamers of the British India Steam Navigation Company about September 12, returning from Beypore or Tuticorin to Madras by rail, and thence by British India Steam Navigation Company's steamer to Calcutta, and arriving about 22nd October, after having had second opportunities of seeing all ports between the two latter places. The approximate cost of this trip is given in Appendix I., and this item has been allowed for in my budget estimate for the current year under the head o "Inspecction Tours."

12, Again I would venture to call the attention of his Excellency the Governor-General in Council to the urgent necessity for hastening the completion of the steamer mentioned in his Excellency's despatch to the Secretary of State, dated Simla, 24th August 1875. It is impossible, with the present vessel, to execute the surveys either economically, rapidly, or satisfactorily.

A. Dundas Taylor, Commander (late I.N.),
Superintendent of Marine Surveys.

Calcutta, December, 1876.

EAST INDIA (MARINE SURVEY).

COPY of the GENERAL REPORT of the Operations of the MARINE SURVEY of INDIA, from the Commencement in 1874 to the end of the Official Year 1875-76, made under the Directions of Commander *Dundas Taylor*, Calcutta, 1876

(*Lord John Hay.*)

Ordered, by The House of Commons, *to be Printed,*
21 *March* 1877.

[*Price* 11 *d.*]

Under 4 *oz.*

EAST INDIA (TRADE WITH WESTERN CHINA).

RETURN to an Address of the Honourable The House of Commons, dated 13 April 1877;—*for*,

"COPIES of DESPATCHES to *India*, Nos. 97 of the 29th day of April 1869, and 144 of the 8th day of December 1870:"

"Of LETTERS from *India*, Nos. 262 of the 21st day of December 1870, and 88 of the 23rd day of May 1871:"

"Of DESPATCHES to *India*, Nos. 30 of the 2nd day of March, and 113 of the 6th day of September 1871:"

"Of a LETTER from the Under Secretary to the Government of *India*, Foreign Department, to the Officiating Chief Commissioner of *British Burmah*, No. 1178 P. of the 4th day of June 1873, and of REPLY thereto, No. 308.6 P. of the 19th day of June 1873:"

"And, of LETTERS from the Secretary to the Government of *India*, Foreign Department, to Her Majesty's Minister at the Court of *Pekin*, No. 1064 P. of the 26th day of May, and No. 1437 P. of the 2nd day of July 1873."

(In continuation of Parliamentary Paper, C. 1456, of Session 1876).

India Office,
April 1877.

GEORGE HAMILTON,
Under Secretary of State.

POLITICAL DESPATCH to *India*, dated 29th April 1869, No. 97.

1. I HAVE maturely considered in Council the letter of Your Excellency's Government, dated 3rd October, No. 166 of 1868, in the Foreign Department, with the enclosed correspondence, relating to a proposed survey of the country lying between Tounghoo, in British Burmah, and Kiang Hung, on the Cambodia River.

2. Her Majesty's Government are desirous of promoting any measure which may have the ultimate effect of facilitating intercourse between India and China, with a view to the interchange of mercantile commodities and the development of the resources of the two countries; and they are anxious to advance, by such explorations as are here suggested, the interests of geographical science.

3. The settlement of the present question is regarded with considerable interest by large and important mercantile communities in this country, and I should be glad therefore if the proposal now before me, which has the support of Colonel Fytche, the Chief Commissioner of British Burmah, could be carried into effect, provided that the necessary operations of the survey can be undertaken without entailing upon your Government any embarrassment or inconvenience in the shape of political complications, and if they should not involve any undue expenditure of the public money.

4. With respect to the latter point, I should wish to receive from you some estimate of the probable expense.

(signed) *Argyll.*

POLITICAL DESPATCH to *India*, dated 8th December (No. 144) 1870.

1. I HAVE to bring to the notice of Your Excellency's Government that no reply has as yet been received to the last paragraph of my Despatch, No. 97 of 29th April 1869, requesting you to furnish me with an estimate of the probable expense of a survey of the country lying between Tounghoo, in British Burmah, and Kiang Hung, on the Cambodia River.

2. I desire to be supplied at your earliest convenience with the requisite information on this point, together with an expression of the opinion of your Excellency's Government as to the expediency or otherwise of continuing the survey of this route between Burmah and China.

(signed) *Argyll.*

(Extract).

No. 262 of 1870.

Government of India, Foreign Department.—Political.

To His Grace the Duke of *Argyll*, K.T., Her Majesty's Secretary of State for India.

My Lord Duke, Fort William, 21 December 1870.

IN Despatch, No. 101, dated 22nd September last, your Grace transmitted to us, "for consideration," a memorandum by Captain R. Sprye, the advocate of the Rangoon and Kiang Hung route, reviewing the various proposed lines of communication between India and China, and commenting on certain statements contained in the memorandum by Major General Fytche on Major Sladen's confidential report.

2. The reasons which induced Lord Lawrence's Government to recommend, and Sir S. Northcote to sanction, the stoppage of the experimental survey of the line of country through which the projected railway from Rangoon to Kiang Hung would run, are very fully set forth in the papers which accompanied Despatch, No. 133, dated 15th August 1867, in the Public Works Department. They showed that on the British side of the frontier some physical difficulties would have to be overcome, though they did not appear to be extraordinary or formidable; that whether the difficulties of the same nature in the country beyond the British frontier were greater or less, at all events the political difficulties were of the gravest character; that the railway would for a considerable part of the distance have to be constructed by labourers imported at great expense from Madras; that it would be therefore a very costly undertaking, and would probably involve a severe loss of life among the labourers; in fine, that this scheme ought not to receive the support of the Government of India at the present time, and that, whatever be its merits, it was brought forward a generation too soon.

3. For these, as well as for financial reasons, Her Majesty's Government stated their opinion in the Despatch No. 111, dated 31st October 1867, that it would at that time be out of the question to render pecuniary aid for the promotion of the enterprise, however favourably it might be reported on. We have attentively perused Captain Sprye's present memorandum, but have failed to perceive that it advances any fresh arguments which should lead to a reconsideration, at the present time, of the scheme which the Government in India and Her Majesty's Government at home considered it to be the most prudent course to suspend in 1867. Nor can we perceive that there is anything in the substance of General Fytche's remarks, as to the present impracticability of any railway in the direction advocated by Captain Sprye, that is not fully borne out by facts.

4. Those remarks, and the arguments on which they are based, apply to the scheme with equal force, whether it was intended to carry the line only as far as the Cambodia River, or to push it on into Southern China.

* * * * *

(signed) *Mayo*,
&c. &c.

TRADE WITH WESTERN CHINA.

(Extract.)

POLITICAL DESPATCH to *India*, dated 2nd March (No. 30) 1871.

1. I HAVE had under my attentive consideration in Council the Foreign letter of Your Excellency's Government, No. 262, of the 21st December 1870, relative to the representations of Captain Sprye for the resumption of the survey between Rangoon and Kiang Hung, the discontinuance of which was, on your strong recommendation, sanctioned by my predecessor, Sir Stafford Northcote, in his Despatch, No. 111, of the 31st October 1867.

2. You are of opinion that the apprehended political difficulty, which formed a prominent ground for discontinuing the exploration, still exists in the same degree as before; and I am constrained to agree with you that, in a financial point of view, the present time is little, if at all, more propitious for the resumption of the undertaking than that in which those paragraphs were penned.

3. In these circumstances Her Majesty's Government acquiesce in the opinion expressed by you in the letter under reply.

* * * * *

(signed) *Argyll.*

No. 88, of 1871.

Government of India, Foreign Department.—Political.

To His Grace the Duke of *Argyll*, K.T., Her Majesty's Secretary of State for India.

My Lord Duke, Simla, 23 May 1871.

WE have the honour to acknowledge the receipt of your Grace's Despatches, marginally noted, calling for an estimate of the cost of continuing the survey of the country between Tounghoo, in British Burmah, and Kiang Hung, on the Cambodia River, and for an expression of our opinion as to the expediency or otherwise of the measure.

No. 97, dated 29 April 1869.
No. 144, dated 8 December 1870.

2. On the latter point we beg to invite the attention of your Grace to our Despatches, noted in the margin. Nothing has occurred since these Despatches were written to induce us to change our opinion as to the inexpediency at present of entering upon a survey of the country referred to.

No. 197, dated 8 December 1866.
No. 133, dated 15 August 1867, in the Public Works Department.
No. 166, dated 3 October 1868.

3. From the Despatches already quoted, your Grace will observe that, at a rough calculation, the cost of the entire survey was estimated at one lakh of rupees. For the preliminary survey of the portion of the line in British territory, the establishment sanctioned by us was 4,234 rupees a month, and the operations occupied three months, thus costing 12,702 rupees. It was then estimated that the work could not be completed in less than one whole season of seven months, and might perhaps occupy more than two seasons. Allowing that the work could be done in 12 months, the cost at the same rate would be 50,808 rupees; but as the operations would be in a foreign country, a considerably heavier expenditure might be looked for. To the above sum would have to be added the salary of a political officer to accompany the expedition, at 2,500 rupees a month, which would make a total expenditure of not less, and probably more, than 80,808 rupees for two seasons of six months each.

We have, &c.
(signed) *Mayo*,
&c. &c.

POLITICAL DESPATCH to *India*, dated 6th September (113) 1871.

1. I HAVE had under attentive consideration in Council the Foreign letter of Your Excellency's Government, No 88, of the 23rd May 1871, relative to the expediency, and probable cost, of completing the survey of the country between Tounghoo and Kiang Hung.

2. You report your unchanged opinion that the resumption of the survey is at present inexpedient, while you estimate the cost at little less than a lakh of rupees.

3. In these circumstances, Her Majesty's Government have no sufficient reason for urging on you the resumption of the undertaking.

(signed) *Argyll.*

(Extract.)

From Secretary to the Government of India, Foreign Department, to Her Majesty's Minister at *Pekin* (No. 1064 P.), dated Simla, 26th May 1873.

I AM directed to acknowledge receipt of your letter to His Excellency the Viceroy and Governor General, dated 27th February last, relative to the recapture of Talifu by the Chinese, and the re-establishment of the Imperial Government in the province of Yunan.

* * * Should the intelligence contained in your letter under acknowledgment prove authentic, His Excellency in Council will be glad if you would ascertain, as soon as it may appear desirable to do so, whether there is any prospect of the Chinese Government being induced to open out trade through the province of Yunan.

From Under Secretary to the Government of India, Foreign Department, to Officiating Chief Commissioner, *British Burmah* (No. 1178 P.), dated Simla, 4th June 1873.

IN acknowledging the receipt of your letter (No. 199-6 P.), dated 3rd May 1873, forwarding the diary of the Assistant Political Agent, Bhamo, from the 3rd to 15th April 1873, I am directed to inquire whether the country is now open for trade between Upper Burma and China, and what prospects there are of regular communications being established.

From Officiating Secretary to the Chief Commissioner, *British Burmah*, to Secretary to the Government of India, Foreign Department (No. 308-6 P.), dated Rangoon, 19th June 1873.

I AM directed to acknowledge receipt of your letter (No. 1178 P.) of the 4th instant, inquiring whether the country is now open for trade between Upper Burmah and China, and what prospects there are of regular communication being established.

2. In reply, I am to say that from the tenour of the latest diaries received from the Political Agent at Bhamo, it does not appear that the route from that station to the Chinese province of Yunan is by any means in a safe condition for travellers. The town of Momein, which is the most westerly town of importance held by the Panthays, is still in the hands of the Mahomedans, although apparently surrounded by the Chinese army.

3. Meanwhile the Khākyens, who hold the hill passes, appear to be in a very disturbed state, and Captain Lowndes' diaries, from the 16th April to the 19th May, mention several instances of their plundering the Shans and others while crossing the hills.

4. In

4. In regard to the future prospects of the routes from Bhamo to Yunan, it is probable that it will very much depend on the course the Chinese may pursue whether greater security will prevail. If they entirely crush the Mahomedan population, and maintain a strong provincial authority in Yunan, there need be no great difficulty in establishing a satisfactory trade route; but while desultory fighting goes on, and Chinese supremacy is not completely ensured, the roads will continue in a very insecure condition.

5. The Chief Commissioner has called on the Political Agent, Mandalay, to report fully on the present condition and future prospects of the routes in question.

6. If such pressure could be brought to bear on the Chinese Government as would induce them to maintain a regular line of guarded stations between Bhamo and Yunan, or Talifoo even, the trade would develop at once.

From Secretary to the Government of India, Foreign Department, to Her Majesty's Envoy Extraordinary, and Minister Plenipotentiary at the Court of Pekin (No. 1437 P.), dated Simla, 2nd July 1873.

WITH reference to the correspondence ending with my letter, No. 1664 P., dated 26th May last, I am directed by His Excellency the Viceroy and Governor General in Council to inform you that the Government of India has learned, through British Burmah, that it may be accepted as a fact that Talifoo has fallen. Both Chinese and Panthays are agreed in this. It is further stated that Sultan Suliman has been decapitated, and that his head has been forwarded to Pekin preserved in honey.

Three of the Sultan's young sons have, it is also said, been sent to Pekin.

The slaughter at Talifoo appears, from all accounts, to have been very great, and some 60,000 or 80,000 Mussulmans are reported as slain. The only two towns remaining at the end of April in possession of the Panthays were Momein and Yuichow, and both of these were expected to succumb shortly.

The Chinese general has since reported to the King of Bhamo that Momein was captured on the 30th May with great slaughter, and that Tahsakon was taken prisoner. The Governor of Yunan has addressed a letter to the King of Burmah, expressing a wish that the trade route might be opened without delay.

EAST INDIA (TRADE WITH WESTERN CHINA).

COPIES of DESPATCHES to *India*, of 29 April 1869, and 8 December 1870; of LETTERS from *India*; of 21 December 1870, and 23 May 1871; of DESPATCHES to *India*, of 2 March, and 6 September 1871; of a LETTER from the Under Secretary to the Government of *India*, Foreign Department, to the Officiating Chief Commissioner of *British Burmah*; of 4 June 1873, and of REPLY thereto; and, of LETTERS from the Secretary to the Government of *India*, Foreign Department, to Her Majesty's Minister at the Court of *Pekin*, of 26 May and 2 July 1873.

(In continuation of Parliamentary Paper, C. 1456, of Session 1876).

(Sir Wilfrid Lawson.)

Ordered, by The House of Commons, *to be Printed,*
20 *April* 1877.

EAST INDIA (MR. FULLER AND MR. LEEDS).

RETURN to an Address of the Honourable The House of Commons, dated, 13 April 1877;—*for*,

"COPIES of all CORRESPONDENCE relating to the Case of Mr. *Fuller* and the Case of Mr. *Leeds*."

"And, of the OPINIONS and DISSENTS of any of the Members of the Indian Council."

India Office, 17 April 1877.

GEORGE HAMILTON, Under Secretary of State.

(No. 37 of 1876.)

Government of India.—Home Department.—Judicial.

To the Most Honourable the Marquis of *Salisbury*, Her Majesty's Secretary of State for India.

My Lord Marquis, Simla, 12 October 1876.

We have the honour to forward the correspondence noted in the margin* with the Government of the North-Western Provinces and the High Court at Allahabad, on the subject of the criminal trial of Mr. Fuller by the Joint Magistrate of Agra, Mr. Leeds, in November 1875.

* Letter to the Government, North-Western Provinces, No. 116, dated 20th January 1876.
Letter from the Government, North-Western Provinces, No. 313A, dated 18th May 1876, and Enclosures.
Letter to the Government, North-Western Provinces, No. 1098, dated 7th July 1876.
Letter from the Government, North-Western Provinces, No. 610A, dated 15th August 1876, and Enclosure.
Letter from the Government North-Western Provinces, No. 647A, dated 31st August 1876, and Enclosure.

2. Briefly stated, these are the facts on which Mr. Fuller was tried. He had, on account of some unpunctuality on the part of his syce, assaulted the man by striking him on the head and face, and pulling him by the hair. Under this assault (which Mr. Fuller alleges to have been committed with the open hand, and not with the fist), the man fell down, then rose, ran into an adjoining compound, and died almost immediately. A *post-mortem* examination proved that the man had died from rupture of the spleen, for which, in the diseased condition of that organ, the violence he had suffered was sufficient cause. For this assault, Mr. Fuller was indicted by Mr. Leeds, under Section 323 of the Indian Penal Code, on a charge of "causing hurt to his syce," tried on that charge, and sentenced to a fine of 30 rupees.

3. Certain notices in the vernacular press drew the attention of the Government of India to the case, and on the 20th January last we requested the North-Western Provinces Government to furnish us with information respecting the alleged inadequacy of the sentence passed on Mr. Fuller. This information was given by that Government, in its Letter, No. 313A, dated 18th May, and it was fully reviewed in the Letter of this Government, No. 1098, dated 7th July.

4. From these two papers, your Lordship will perceive that the case had apparently passed without notice from the Local Government previous to its receipt of our communication. Thereupon, however, the Lieutenant Governor called the attention of the High Court at Allahabad to the case, and obtained from them an intimation that, though the sentence awarded by the Joint Magistrate was, in the opinion of the High Court, perhaps inadequate, yet that it did not seem to the Court specially open to objection. The Lieutenant Governor, in

forwarding the Court's answer, stated that, in his Honour's own opinion, the case did not call for further action.

5. In that opinion we are unable to concur. It appears from Mr. Leeds' judgment that Mr. Fuller is an European British subject, and a magistrate of the rank of Mr. Leeds cannot inflict on an European British subject any sentence heavier than a fine of 1,000 rupees and three months' imprisonment; whereas the punishment allowed by law for the offence of simple hurt is a fine of 1,000 rupees and one year's imprisonment, to say nothing of that which may be awarded for the graver offences suggested by an illegal act resulting in death. We also thought that the occasion more especially called for the notice of superior authority, because the case was not an isolated case, but one of several in which very insufficient sentences had been passed for similar offences. It seemed to us that the course adopted by the Joint Magistrate was open to two serious objections. We believed, in the first place, that Mr. Leeds had shown a grave want of discretion in dealing with the case himself, and that he might and ought to have remitted to a superior tribunal the questions both of the legal degree of guilt attaching to the acts of the accused, and of the proper degree of punishment applicable thereto. We considered, in the first place, that, even supposing Mr. Leeds had acted rightly in dealing with the case himself, the penalty which he inflicted on the accused was scandalously inadequate, and, in fact, purely nominal.

6. We accordingly intimated our regret that the Government of the North-Western Provinces had allowed the case originally to pass without notice, and that the High Court had deemed their duties and responsibilities adequately discharged by such a mere expression of opinion as the case had called forth from them. We at the same time censured Mr. Leeds for his want of judgment and judicial capacity, and desired that he should not be employed in any higher office for at least a year.

7. We have since received, as will be seen, a letter from the High Court at Allahabad, and a Minute written by the Honourable Chief Justice, Sir Robert Stuart, which deal with our observations and orders, and raise certain objections of a legal or constitutional character, on which we will comment after dealing with some separate matters.

8. Apart from their legal objections, the Court observe that the case of Regina *v.* Fuller was never fully laid before them, and express regret that the Government of India, by challenging their view of the case before they had arrived at a matured and deliberate judgment on it, should have virtually censured the Court on an informal expression of opinion which they had no opportunity to explain or reconsider. Inasmuch, therefore, as the Court themselves imply that some more satisfactory result might have followed further reference to them, it must be regretted that the formal and precise character of the reply given by the Court to the inquiry of the Local Government left us no reason to suppose that it did not express their deliberate and final opinion, and, in fact, that opinion now appears to stand unchanged in all material points.

9. In their 8th paragraph, the Court, while they admit the authority of the Executive to censure or punish misconduct on the part of an officer of a subordinate Court, express an opinion that this authority would ordinarily be more fairly exercised after reference to the Court to which that officer is subordinate. We do not dispute this position; on the contrary, we have usually, on such occasions, sought the assistance of the High Courts, and gladly acknowledge the aid we have received from them. We may say, in fact, that such a reference is almost invariably our practice. Certainly, in the present case, we should have been very glad if the Court had seen their way to interpose by the exercise of either their judicial or their executive functions, that is, either by calling up the case, or by rebuking the Magistrate. If the Court had so acted we should have been relieved from the duty of reproving the Magistrate ourselves. But, as before pointed out, we had every reason to believe that the Court, having had their attention called to the case, had declared an opinion which we were unable to accept.

10. In their 10th paragraph the Court express apprehension that our Resolution may impair their authority. We, however, are anxious that they should exercise their authority in such cases; and we think that our expression of

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regret that they have not done so is calculated rather to strengthen than to weaken their hands whenever they put in action those functions of reproof and advice which are involved in their general duty of superintendence.

11. So far as their 15th paragraph is concerned, we concur in the general expediency of the course recommended by the Court, though there are some practical difficulties in the way of always adopting it. In the present instance it was quite within the competence of the Court to have required a more formal procedure. We are willing, however, that, as far as possible, the course which the Court indicate should be adopted in similar cases for the future, and will gladly avail ourselves of any suggestion from the Court for rendering that course more generally practicable.

12. By far the most important portion of the remonstrance addressed to us by the Court lies in paras. 2 to 10 of their letter; and inasmuch as we cannot resolve in the sense suggested and desired by the Court the questions raised in this part of their letter, though we do not conceive that we have in any way encroached on their authority or independence, we refer them to your Lordship in accordance with their wishes. Whilst so doing, we are glad to acknowledge the temperate and dispassionate manner in which the Court have stated their views concerning their relations to other parts of the Indian system of government.

13. The arguments on which the Court and Chief Justice rely, in claiming for the High Courts entire independence of the Executive, may be briefly stated as follows:

In establishing the old Supreme Courts of Judicature in the Presidency towns, the Crown, they say, delegated its inherent powers for the administration of justice to tribunals intended to be generally independent of the Executive in the discharge of their functions, and it was the intention of Parliament to invest the present High Courts with a similar independence. The Statutes under which these Courts were established declare that the Judges shall hold office during Her Majesty's pleasure, and only empower the Governor General in Council (or the Governor in Council, as the case may be) to receive their resignation, and make temporary appointments to vacancies on the Bench. The Courts were, by the Act, invested with such powers as the Crown might confer on them by Letters Patent, but, subject to these Letters Patent, and to the legislative action of the Governor General in Council, they were to possess the same powers as those of the Supreme and Sudder Courts which the Act abolished, as well as a general superintendence over the Courts subordinate to their appellate jurisdiction, although the rules made for this and other similar purposes were to be subject to the sanction of the Governor General in Council. The Letters Patent, moreover, only declare that the Courts should obey the requisition of the Government for such records, returns, and statements as the Government may require.

14. On these grounds, the Court question the right of the Governor General in Council to approve or condemn their action in any matter within the jurisdiction of the Court. The Court's letter also suggests that, in giving to the High Courts power and authority to administer justice and exercise superintendence over the subordinate tribunals, it was the intention of Parliament to exclude the Executive Government altogether from any share in such functions.

15. The Chief Justice carries his conclusions further. He contends that the Supreme Courts, in the exercise of their official and judicial powers, were amenable to no authority but that of the King in Council, and to this only in respect of judgments, decrees, and orders appealed from; that the power of the Supreme Courts, limited only by the Letters Patent, has descended intact to the High Courts; and that no authority anywhere exists competent to review the action of the High Courts except in those cases in which appeals are preferred to the Privy Council from their decrees. The Chief Justice also goes on to compare the relations existing in India and in England respectively between the judiciary and the executive.

16. We do not think it necessary to follow the learned Chief Justice into his comparison of Indian with English arrangements, nor to inquire how far the various

various ranks of the Magistracy in England may be subjected to comment or correction from Her Majesty's Executive Government, or from the Houses of Parliament which influence the Executive. We have simply to inquire whether, Indian arrangements being what they are, it is beyond the province of the Governor General in Council to reprimand or to punish an Indian Magistrate whom he considers to have erred in the discharge of his duty, or to remark on what he believes to be the shortcoming of a High Court.

17. For the same reason, we do not enter upon any inquiry how far the High Courts stand in the position of the Supreme Courts, and how far in that of the Sudder Courts, nor stop to point out the extremely limited jurisdiction of the Supreme Courts. The High Courts Act established machinery compounded of various pre-existing elements and some new ones, but forming a new and different whole, and the question what part it plays in our system should, we conceive, be decided on other grounds than those of inheritance or tradition.

18. By Act of Parliament the Governor General in Council is charged with the "superintendence, direction, and control of the whole Civil and Military Government" of British India, subject in turn to the control of the Secretary of State in Council. The Governor General in Council is, therefore, the only authority in British India invested with the entire responsibility of every department and function of Government. There can be no question that the administration of justice is one of the most important functions of Government. Misbehaviour in the charge of judicial functions, from whatever cause proceeding, brings the administration of justice into contempt, and nothing is more calculated to derange the social order which it is the especial duty of the Government to preserve.

19. Each of the High Courts in India is invested with some important executive functions within its own province. The High Courts Act gives to them the superintendence over all subordinate Courts; with power to call for returns, and, subject to the control of Government, to make rules for practice, besides performing other acts of supervision. They have also been invested by Acts of the Indian Legislature with divers controlling powers, and, in the case of some minor Civil Judges, with powers of punishment. They are, therefore, an important portion of the executive administration of the country.

20. We are quite unable to find in the High Courts Act, or in any Charter, an intention to substitute the High Court for the Government of India in that portion of the administration which consists of reviewing or controlling the acts of the magistracy. There is no power there given to them of appointing, promoting, removing, suspending, or in any way punishing (except that reproof may follow upon superintendence) any subordinate Magistrate whatever. It can hardly be supposed that the Legislature meant to leave the whole power of reward and punishment in the hands of one authority, and the whole power of commendation, reproof, and advice in the hands of another.

21. We are equally unable to see how, in the Acts or Charters relating to the High Courts, anything can be found to show that their executive action enjoys immunity from comment, whether by the Governor General in Council, as contended by the Court, or by all other authorities, as contended by the Chief Justice. If it were so, there might be any degree of supineness on the part of a High Court, or refusal to use the powers committed to them, and yet not a word could be said, according to one view, by the authority responsible for the whole Civil Government of India, and, according to the other view, by any authority at all. With regard to the language of the High Courts Act respecting the appointment of Judges, on which the Court seem disposed to lay stress, we should rather say that, if it has any bearing at all on the present question, it would, when read by the light of the history of the English judicature, lead to a conclusion very different from that drawn by the High Court.

22. Unless, therefore, we are otherwise instructed by your Lordship in Council, we shall continue to act on the principle that it is our duty in the ultimate resort, and in adequate cases, to censure and to punish flagrant miscarriages of justice, and to comment, when necessary, on the course of the administration of justice in India. We are sensible of the delicacy of this

power,

power, and we feel assured that the Government of India will never use it wantonly or indiscreetly.

23. We have dealt with the subject in its broadest aspect, because we think that the question is distinctly so raised by the letter and minute under review. But the Court, as distinguished from the Chief Justice, do not press to its full extent the principle on which they rely. Seeing that the power of reward and punishment resides with the Executive alone, they draw a distinction between the present case and other cases which they do not specify; and they suggest (in their paragraph 8) that, though the Government of India may interfere sometimes, it is not right for anybody but themselves "to instruct the subordinate Courts touching the conduct of their judicial duties," and that the Government of India should avoid any declaration "as to the law which should have been administered, or procedure which should have been adopted, in a particular instance."

24. Upon that distinction we have to observe that, in the present instance, we have carefully guarded ourselves from expressing any opinion on the substantive law of the case; that is to say, we have expressed no opinion as to what was the legal nature of the offence of which Mr. Fuller should have been found guilty upon the evidence ultimately received by the Court. The learned Judges have bestowed some attention on that question, but we do not consider it relevant to the discussion.

25. The overt and undisputed facts of the case are that Mr. Fuller committed an act of illegal violence, and that it caused death. Between those two facts is comprehended a whole series of offences ranging from simple hurt to wilful murder. Such an act, with such a result, may amount to either of those crimes, or to culpable homicide, grievous hurt, or rashness causing death. The degree of criminality depends on the intention.

26. Now there may be cases of offences triable either by a Magistrate or the Court of Sessions, according to the magnitude of the crime involved, in which the intention is so clear, and the lighter character of the offence so palpable, that a Magistrate may properly take them as established on preliminary inquiry, and deal with the case himself. But in cases of homicide this is rarely proper. The question of intention is usually one of nicety, and not so plain as to be decided on a preliminary inquiry.

In the present case there was some evidence given at the trial which, if believed (the Joint Magistrate did not believe it, and we have assumed that he was right), would have given to Mr. Fuller's offence a much graver complexion than Mr. Leeds considered it to possess, and we think that both the evidence and the legal definition of the offence ought to have been left to the judgment of the higher Court. Moreover, the act of illegal violence committed by Mr. Fuller belonged to a class of offences which ought, for obvious political reasons, to receive the fullest, the most public, and the most authoritative examination, whenever they occur, by a tribunal competent to inflict upon any offender, whatever his nationality, such sentence as may be found to be appropriate.

27. We, therefore, censured Mr. Leeds, not for an error in law, but for an error in conduct. We consider that the Joint Magistrate having, for the trial of this case, an option between two tribunals, evinced a culpable want of discretion in selecting that one before which evidence either of the graver class of crime, or of an aggravated instance of the lighter class, would be useless for want of jurisdiction. We consider further that this primary error was seriously augmented by the passing of a sentence which, if regarded only in reference to the evidence received and the indictment framed by the Joint Magistrate, was still so inadequate as to constitute a mockery of justice.

28. If we are right Mr. Leeds has been justly censured, and we are not to be debarred from censuring him because his faulty act was a judicial act. The position taken by the Court would shut us out from noticing all judicial acts, however corrupt, however arbitrary, however perverse, however calculated to bring obloquy on our administration. Such a position cannot, as we conceive, be maintained.

29. It is true that the Court seem to suggest, in their 17th and 18th paragraphs,

graphs, that the circumstances of the case were such as, under the 196th Section of the Code of Criminal Procedure, left no discretion whatever to the Magistrate, and that he was bound to try the case himself on the lightest charge consistent with the undisputed facts. We have, however, much difficulty in ascertaining the precise meaning of the Court, for in their paragraph 18 they apply the reasoning of paragraph 17 to the facts actually disclosed by credible evidence; whereas the question is, what facts appeared on preliminary inquiry, and what facts should have been taken, when such grave results had happened, as fairly likely to be disclosed before a competent tribunal. To the principles expressed in paragraph 17 we take no exception. The action of the Magistrate is to depend, according to those principles, on his being satisfied, and on his own opinion. But a man may be satisfied on reasonable or unreasonable grounds, and may form his opinion with or without care and judgment. A certain degree of irrationality or carelessness is visitable with censure, and we think that such a case occurred here.

30. If, indeed, we thought that the law compelled a Magistrate on preliminary inquiry to ascertain precisely the legal character of the offence, we should at once propose to alter the rule of procedure, for the result would be to confine to the lower and least experienced Court the decision on all delicate questions of law and evidence, and to refer to the superior and more experienced Court, which moreover alone has the assistance of a jury or assessors, only those cases in which there could be little or no possible question either of law or of fact, and every such case would thus be twice fully investigated, once by the Magistrate and once by the Judge. We feel assured that the intention of the framers of the Code of Criminal Procedure was very different from that involved in this view, and that the clause in question is calculated merely to assist the discretion of the Magistrate, and to indicate the point to which he is bound to carry his investigation before relegating a case to the Sessions Court for complete trial.

31. With reference to the case mentioned by the High Court in paragraph 9 of their letter, and again by the Chief Justice, we have only to remark that this case had nothing to do with the misconduct of a Judge, and has no bearing on the present question.

32. Your Lordship will observe that both the High Court, the Chief Justice, and the Lieutenant Governor unite in recommending that our order suspending Mr. Leeds from the exercise of his magisterial functions may now be withdrawn, in consideration of that officer's general character for ability and diligence. We are glad to receive testimony so favourable to Mr. Leeds. But our order was not passed on any consideration of his general character. It was passed with exclusive reference to what we considered to have been a flagrant miscarriage of justice in this particular case. The facts on which that opinion was founded remain unchanged. If the order we passed upon them was at any time a just one, its justice cannot now be impugned; and we are of opinion that the revocation or reversal of it would destroy the good it was intended to effect.

33. In conclusion, we observe that the High Court seem somewhat out of order in addressing their letter (though it was forwarded to us through the Government of the North-Western Provinces) direct to the Government of India instead of to the Local Government. But the subject matter of the correspondence is so important that we do not consider it right to delay the transmission of it to your Lordship in Council for the rectification of a mere error in form.

We have, &c.

(signed) *Lytton.*
H. W. Norman.
Arthur Hobhouse.
E. C. Bayley.
W. Muir.
Alexr. J. Arbuthnot.
A. W. Greene.

No. 116, dated Fort William, 20 Jannary 1876.

From *Arthur Howell*, Esq., Officiating Secretary to the Government of India, Home Department, to the Secretary to the Government of the North-Western Provinces.

WITH reference to the first entry in page 632 of the Selections from the Vernacular Newspapers published in the Upper Provinces between the 10th and 15th ultimo, I am directed to inquire whether there is any foundation for the statement that a Mr. Fuller, a pleader at Agra, killed a syce and was fined 30 rupees for the offence. If the case has been in any way before the North-Western Provinces Government, the Governor General in Council would be glad to see a copy of the final orders passed on it.

No. 313 A., dated Naini Tal, 18 May 1876.

From *B. W. Colvin*, Esq., Officiating Secretary to Government, North-Western Provinces, to the Officiating Secretary to the Government of India, Home Department.

IN reply to your letter, No. 116, dated 20th January last, I am directed to say that the first extract on page 632 of the Selections from Vernacular Newspapers of the 20th December 1875, regarding an assault committed by a Mr. Fuller, of Agra, upon his syce, resulting in the death of the latter, for which Mr. Fuller was fined 30 rupees, is founded on fact.

2. The case has not been directly before the Local Government, but the opinion of the High Court of these Provinces has been taken respecting the adequacy of the sentence. I am to forward a copy* of that opinion and of the judgment of the Joint Magistrate of Agra, Mr. R. J. Leeds, upon which it was based, and to say that, as the High Court do not think the sentence especially open to objection, no further action appears to the Lieutenant Governor to be necessary.

* No. 1338, dated 27 April last.

No. 1338, dated Allahabad, 27 April 1876.

From *W. Tyrrell*, Esq., Registrar, High Court of Judicature, North-Western Provinces, to the Officiating Secretary to the Government of the North-Western Provinces.

I AM directed to acknowledge the receipt of the demi-official letter from your office, dated the 31st ultimo, forwarding the record of the case indicated in the margin, and requesting an expression of the Court's opinion as to the propriety of the sentence passed upon the accused.

Regina v. Fuller. Charged under section 323, Indian Penal Code, and sentenced to pay a fine of 30 rupees by the Joint Magistrate of Agra.

2. In reply, I am desired to observe that the Joint Magistrate considered the evidence given by Saikoo, coachman, to be the most reliable. According to his statement, the accused was annoyed because the deceased, a syce, did not attend when his carriage was brought round to the door; he sent for him, struck him twice with his open hand, and seized him by the hair of his head, whereupon the deceased fell.

The medical evidence shows that the spleen was in a diseased condition, that death was caused by the rupture of the spleen, that this injury might have been caused by moderate violence or by a fall, and that there were no external marks of injury on the body.

3. Under these circumstances it appears that no great violence was used, and that the accused neither contemplated nor could have foreseen that severe hurt would have resulted from the degree of violence exerted by him, much less that it should have been followed by the lamentable result of death.

4. On these facts, as found by the Joint Magistrate, the sentence, though perhaps lighter than the Court would have been disposed to inflict under the circumstances, does not appear to be especially open to objection.

5. The record of the case received from your office is herewith returned.

Government *v.* R. A. Faller.

THE accused is charged under Section 523, Indian Penal Code, with causing hurt to one Katwaroo, his syce. It appears that, on the morning of 31st October last, the accused and his family were about to proceed to church, and that the accused, annoyed at the non-attendance of the syce, sent for him, struck him with his open hand on the head and face, and pulled his hair, causing him to fall. The syce immediately got up and ran across the road into the adjoining compound, where he fell in front of the kitchen, and died shortly after.

In the meanwhile the accused and his family drove on to the cathedral, whence they were summoned by a neighbour, who informed them of what had happened. The medical evidence shows clearly that Katwaroo, the deceased, died from rupture of the spleen, which was much enlarged, and that very slight violence, either from a blow or a fall, would be sufficient to cause the injury.

Three out of the four eye-witnesses declare that the deceased was kicked in the stomach, but I see no ground for believing the statement. In the first place, the coachman, Saikoo, who was the only one of the witnesses in a position to see well what passed, makes no mention of the kicking.

2ndly. The accused himself, who at once reported the occurrence to the Magistrate, and made a detailed statement before me within two hours of the event, emphatically denies having kicked the deceased.

3rdly. There were no external marks of injury whatever, and it is on evidence that the rupture of the spleen which caused Katwaroo's death may have resulted from very slight violence, either in the shape of a blow or a fall.

4thly. The three grass-cuts were, by their own showing, at some distance and in positions which make it doubtful whether they really saw what passed.

5thly. The grass-cuts are more or less prejudiced witnesses from their relationship and connection with the deceased.

6thly. It is *primâ facie* improbable that a European would kick his servant in the stomach. On these grounds I decline to accept a statement which, if true, would greatly aggravate the character of the offence, and render a committal necessary.

The coachman, who was close by when the assault took place, appears to have given a very fair account of what passed; and accepting the facts deposed to by him, it does not seem to me that the offence was other than one of causing hurt, as defined in Sections 319 and 321, Indian Penal Code.

I have accordingly framed a charge under Section 323, to which the accused pleads guilty. Before the charge had been drawn up, Mr. Beddy, for the accused, contended,—

1st. That no offence had been committed, as the law authorized a master to inflict moderate chastisement on his servant.

2nd. That no offence had been committed, as there was an implied contract on the part of the deceased as a servant to submit to such moderate chastisement.

On these objections being overruled, and the accused formally charged, Mr. Beddy urged in extenuation,—

1st. That the hurt voluntarily caused was slight.

2nd. That it was inflicted by way of correction.

3rd. That it was inflicted under provocation.

4th. That the offence was a compoundable one.

Taking

Taking all the circumstances fully and fairly into consideration, I am of opinion that the accused is guilty of voluntarily causing what distinctly amounts to hurt, in the ordinary as well as the technical sense of that word, and thus the illegality of his conduct must be marked by a fine which shall be something more than nominal.

I accordingly find Robert Augustus Fuller guilty of voluntarily causing hurt to one Katwaroo, an offence punishable under Section 323, Indian Penal Code, and sentence him to pay a fine of 30 rupees, or in default to undergo 15 days' simple imprisonment.

Under Section 308, Act X. of 1872, I direct that the amount of the fine be paid to the widow of the deceased.

R. J. Leeds,
Joint Magistrate and Justice of the Peace.

Agra, 6 November 1875.

(No. 1098.)

Home Department, Judicial.

From *Arthur Howell*, Esq., Officiating Secretary to the Government of India, to the Secretary of the Government of the North-Western Provinces.

Simla, 7 July 1876.

I AM directed to acknowledge your Letter, No. 313, dated the 18th May last, forwarding, at the request of the Government of India, copy of the judgment of Mr. Leeds, Joint Magistrate of Agra, in the case of The Crown *versus* R. A. Fuller, together with a letter from the High Court of the North-Western Provinces, expressing the Court's opinion on the sentence inflicted on Mr. Fuller by the Joint Magistrate.

2. The facts of the case are as follows: One Sunday morning, Mr. Fuller, an English pleader at Agra, was about to drive to church with his family. When the carriage was brought to the door, the syce failed to be in attendance, but made his appearance when sent for. For this cause Mr. Fuller struck the syce with his open hand on the head and face, and pulled him by the hair, so as to cause him to fall down. Mr. Fuller and his family drove on to church; the syce got up, went into an adjoining compound, and there died almost immediately.

3. The Joint Magistrate of Agra, before whom Mr. Fuller was placed to take his trial, framed the indictment, under Section 323 of the Indian Penal Code, for "causing hurt to one Katwaroo, his syce;" and it appeared, from the evidence of the medical officer who had conducted the *post-mortem* examination, that the man had died from rupture of the spleen, which very slight violence, either from a blow or a fall, would be sufficient to cause; in consequence of the morbid enlargement of that organ. The evidence in the case does not show any other assault; at least, the Joint Magistrate disbelieved (apparently on good grounds) all that portion of the evidence which referred to any other assault. The Joint Magistrate found Mr. Fuller guilty of "voluntarily causing what distinctly amounts to hurt," and sentenced him to pay a fine of 30 rupees, or, in default, to undergo 15 days' simple imprisonment; directing the amount of the fine to be made over to the widow of the deceased. At the request of the Local Government, the High Court expressed an opinion on the case, which was to the effect that the sentence, though perhaps lighter than the High Court would have been disposed to inflict under the circumstances, was not especially open to objection.

4. The Governor General in Council cannot but regret that the High Court should have considered that its duties and responsibilities in this matter were adequately fulfilled by the expression of such an opinion. He also regrets that

the Local Government should have made no inquiry, until directed to do so by the Government of India, into the circumstances of a case so injurious to the honour of British rule, and so damaging to the reputation of British justice in this country.

5. The Governor General in Council cannot doubt that the death of Katwaroo was the direct result of the violence used towards him by Mr. Fuller. He observes that the High Court assumes the connection between the two events as being clear. Yet, on reading Mr. Leeds' judgment, he does not find that that gentleman ever considered the effect or even the existence of this connection. Mr. Leeds did, indeed, consider whether Mr. Fuller ought not to be subjected to a more serious charge, but only because there was evidence given of further violence used by him, which evidence Mr. Leeds rejected, on grounds which are here assumed to have been sufficient. He seems, however, to have viewed an assault resulting in the death of the injured man in just the same light as if it had been attended by no such result.

6. The class of misconduct out of which this crime has arisen is believed to be dying out; but the Governor General in Council would take this opportunity of expressing his abhorrence of the practice, instances of which occasionally come to light, of European masters treating their native servants in a manner in which they would not treat men of their own race. This practice is all the more cowardly, because those who are least able to retaliate injury or insult have the strongest claim upon the forbearance and protection of their employers. But, bad as it is from every point of view, it is made worse by the fact, known to all residents in India, that Asiatics are subject to internal disease which often renders fatal to life even a slight external shock. The Governor General in Council considers that the habit of resorting to blows on every trifling provocation should be visited by adequate legal penalties, and that those who indulge in it should reflect that they may be put in jeopardy for a serious crime.

7. The Governor General in Council cannot say whether Mr. Fuller would have been convicted of a more serious offence, such as that of causing grievous hurt, or that of culpable homicide, had he been charged with it. But this he can say with confidence, that, in consequence of Mr. Fuller's illegal violence, his servant died, and that it was the plain duty of the Magistrate to have sent Mr. Fuller to trial for the more serious offence, a course which would not have prevented him from being punished (indeed he could thus have been more adequately punished) for the lesser offence, if that alone had been proved.

8. But, besides his error of judgment in trying this case himself, the Governor General in Council thinks that Mr. Leeds has evinced a most inadequate sense of the magnitude of the offence of which Mr. Fuller was found guilty. The offence was that of "voluntarily causing hurt." That is an offence which varies infinitely in degree, from one which is little more than nominal, to one which is so great that the Penal Code assigns to it the heavy punishment of imprisonment for a year *and* a fine of 1,000 rupees. The amount of hurt and the amount of provocation are material elements in determining the sentence for such an offence. In Mr. Fuller's case, while the provocation was exceedingly small, the hurt was death. For this, Mr. Leeds, while saying that he intends to inflict a punishment something more than nominal, inflicts only a fine of 30 rupees. The Governor General in Council considers that, with reference either to the public interests, or to the compensation due to Katwaroo's family from a person in Mr. Fuller's position (and it does not appear from the papers that Mr. Fuller has made any other compensation), such a sentence is wholly insufficient. He considers that Mr. Leeds has treated the offence as a merely nominal one, and has inflicted a merely nominal punishment; and that to treat such offences with practical impunity is a very bad example, and likely rather to encourage than repress them.

9. For these reasons, the Governor General in Council views Mr. Leeds' conduct in this case with grave dissatisfaction. He should be so informed, and should be severely reprimanded for his great want of judgment and judicial capacity. In the opinion of the Governor General in Council, Mr. Leeds should not be entrusted, even temporarily, with the independent charge of a district, until

until he has given proof of better judgment, and a more correct appreciation of the duties and responsibilities of magisterial officers, for at least a year.

I have, &c.
(signed) *Arthur Howell,*
Officiating Secretary to the Government of India.

No. 610.A, dated Naini Tal, 15 August 1876.

From *B. W. Colvin*, Esq., Officiating Secretary to the Government of the North-Western Provinces to the Officiating Secretary to the Government of India, Home Department.

WITH reference to your letter, No. 1098, dated 7th July last, I am directed to forward the enclosed letter,* addressed by the High Court of Judicature, North-Western Provinces, to the Government of India, regarding the case of Regina *versus* Fuller.

* No. 2431, dated 5 August 1876.

2. With advertence to its paragraph 35, I am desired by the Officiating Lieutenant Governor to say that he has reason to believe that the favourable opinion of Mr. Leeds' general character and qualifications which is expressed by the High Court was also held by his predecessor.

3. Mr. Leeds has already during the present month been once passed over for the charge of a district, in compliance with the instructions conveyed in your letter under reply.

In view of this, and of the recommendation in his behalf which has been submitted by the High Court, Sir George Couper would be glad if his Excellency the Governor General in Council should see fit to reconsider the orders which have been passed regarding him, and to relieve him of the disqualification which, at present, operates as a bar to his promotion for the next year to come.

(No. 2431 of 1876.)

From *William Tyrrell*, Esq., Registrar, High Court, North-Western Provinces, to *Arthur Howell*, Esq., Officiating Secretary to the Government of India, Home Department; dated Allahabad, 5 August 1876.

THE High Court of Judicature for the North-Western Provinces has observed in the "Gazette of India" a letter addressed by you to the Secretary to Government, North-Western Provinces, dated Simla, 7th July 1876, of which it has recently been favoured with a copy through the Local Government.

2. In that letter you inform the Local Government that his Excellency in Council has been pleased to pass a grave censure on the High Court, and to condemn and visit with a severe punishment a Magistrate subordinate to the Court. You point out, at the same time, the course which in the discharge of his judicial duties the Magistrate should have pursued, and thus suggest the inference that the High Court is blameable for its omission to issue similar directions.

While it entertains all due respect for the high authority you represent, the High Court desires to submit the following observations for the consideration of his Excellency in Council.

3. The procedure adopted by his Excellency in Council gives rise to most important questions touching the position of the High Courts of Judicature in reference to the executive authority of his Excellency in Council.

4. In establishing Supreme Courts of Judicature in the Presidency towns, the Sovereign delegated his inherent powers for the administration of justice to

tribunals which, in the exercise of the functions committed to them, were to be generally independent of the Executive.

5. When Parliament empowered Her Imperial Majesty to substitute for the Supreme and Sudder Courts High Courts of Judicature, it was its intention to provide for the creation, in those parts of British India to which Her Imperial Majesty might be advised the privileges could be conceded, of independent tribunals, similar to those which had theretofore exercised jurisdiction in the Presidency towns.

The Statute 24 & 25 Vict. c. 104, which gave effect to this purpose, declares that the Judges of the High Courts shall hold office during Her Majesty's pleasure; and confers on the Governor General in Council, or the Governors in Council, as the case may be, no other powers in respect of the appointment or removal of Judges than the power to receive their resignations, and to make temporary appointments to vacancies in the Court until Her Majesty's pleasure be known.

The 9th section enacts that each of the High Courts to be established thereunder shall have and exercise all such civil, criminal, &c. jurisdiction, and all such powers and authority in relation to the administration of justice, as Her Majesty may by her Letters Patent direct, but subject to such limitations as are prescribed thereby; and that, save as by her Letters Patent may be otherwise directed, and subject and without prejudice to the legislative powers of the Governor General in Council, &c., the High Courts shall have and exercise all jurisdiction and every power and authority whatsoever in any manner vested in any of the Courts abolished under the Acts, &c. By the 15th section of the same Statute, it is declared that the High Court shall have superintendence over all Courts which may be subject to the appellate jurisdiction, and power to make general rules for regulating practice and procedure of the subordinate Courts, to prescribe forms, and to settle tables of fees, provided that such general rules, forms, and tables are not inconsistent with the provisions of any general law in force, and shall before they are issued have received the sanction of the Governor General in Council.

6. The Letters Patent creating the High Court for the North-Western Provinces do not subject the High Court to the executive power of the Governor General in Council, further than by declaring Her Majesty's pleasure that the Court shall comply with such requisitions as may be made by the Government for records, returns, and statements in such form and manner as the Government may deem proper.

7. Seeing, then, that the Judges of the High Court derive their powers immediately from Her Imperial Majesty and from Parliament, and are directly responsible to the supreme authority of Her Imperial Majesty for the proper discharge of the functions committed to them, the first question that arises is, whether they are subject to the executive power of his Excellency in Council further than is declared by the Statute or by the Letters Patent, and whether it is within the province of his Excellency in Council in a published resolution to approve of or condemn the action of the Court in any matter which falls clearly within the functions committed to the Court.

8. The next question that arises is, whether, in distinctly conferring on the Court all such powers and authority for and in relation to the administration of justice within the territory subject to its jurisdiction, as Her Majesty might by her Letters Patent direct, save as might be thereby expressly limited, and subject to the legislative powers of the Governor General in Council, and in committing to the Court superintendence over all Courts subordinate to its appellate jurisdiction, it was not the intention of Parliament to exclude the executive authority from such functions, and consequently whether it is not beyond the competency of any authority other than the High Court to instruct the subordinate Courts touching the conduct of their judicial duties.

The Court must not be understood as questioning the competency of his Excellency in Council to notice and punish misconduct on the part of an officer of a subordinate Court, though it ventures to think this power might be more fairly exercised after reference to the High Court to which the officer is subordinate; but it is submitted that, in the exercise of this power, regard should be had to the peculiar functions committed to the High Court, and any declaration

avoided

avoided as to the law which should have been administered or procedure which should have been adopted in a particular instance, seeing that, proceeding from so high an authority, any such declaration could not but influence the subordinate Courts in other cases.

If it be competent to any other authority than the High Court to exercise such functions, conflicting directions may confuse the subordinate Courts, and impede the administration of justice.

9. The Court believed that this important distinction between the functions of the Executive Government and the High Court had in a measure been recently recognised by the Governor General in Council, in the sense for which it now contends, on the occasion of a reference made, at the instance of the Court, by the Honourable Sir William Muir, when holding the office of Lieutenant Governor of the North-Western Provinces.

10. But, assuming that the action of his Excellency in Council is within his high prerogative, the Court cannot but regret that no intimation was conveyed to it of the intention of his Excellency in Council to take action, and no opportunity afforded it for explanation or statement before the publication of your letter in the "Gazette." The course pursued has obliged the Court to invest the vindication of its office with an appearance of protest, which the high respect it owes to his Excellency in Council would have induced it on any less grave occasion to avoid. Having regard to the source from which its functions are derived, the Court submits it was entitled to expect an opportunity of addressing his Excellency in Council before the publication of a resolution which cannot but impair its authority.

11. The case of The Crown *v.* Fuller was, it is believed, first brought to the notice of the Government of India by the published translation of extracts from the vernacular press. These translated extracts are not furnished to the Court, and the first intimation which the Court received of the proceedings in The Crown *v.* Fuller was contained in two letters from the Secretary to the Local Government. In the first letter it was mentioned that the case had attracted the attention of the Government of India, and it was suggested that the Judges might wish to see the papers; and in the second letter the record was enclosed, and the opinion of the Judges requested by his Honor the Lieutenant Governor as to the adequacy of the sentence.

12. Some of the Judges doubted whether they ought to express an opinion on a question which it was competent to the Government to bring formally before them by motion in Court. But as a matter of courtesy, and in the belief that the Local Government was acting in concert with the Government of India, the record was submitted to each of the five Judges who constitute the Court, and an unanimous opinion was recorded that the sentence, though lighter than the Court would have been disposed to inflict, was, under the circumstances, not specially open to objection, and therefore did not call for interference. This opinion was communicated to his Honor the Lieutenant Governor.

13. His Excellency in Council expresses his regret that the Court should have considered its duties and responsibilities in this matter were adequately fulfilled by the expression of such an opinion.

14. The Court may allow it would more properly have discharged its duty had it pointed out to the Government that, if doubt were entertained of the propriety of the sentence, it should be moved to exercise its powers of revision by one of the three law officers appointed to represent the Government in the High Court. The procedure adopted deprived the Court of the advantage of hearing the arguments of the law officers of the Crown.

15. It is doubtless within the competency of the Court, of its own motion, to call for and revise the proceedings of the subordinate Courts, and it not unfrequently exercises this power, although, for reasons which are obvious, it is at all times chary of interfering to enhance sentences passed by the subordinate Courts, but it also permits parties to the proceedings to move it to exercise its powers of revision. It is submitted that it would be more convenient if, when the Government, which is a party to every criminal proceeding, is alive to any apparent defect in the administration of criminal justice, it moved the Court,

through its law officers, to call for the proceedings, and, if necessary, to correct them in revision.

16. When, however, the Court, at the instance of the Government, had perused the record, and had arrived at the opinion that, on the facts found by the Magistrate (facts which his Excellency in Council admits to have been correctly found), the sentence was inadequate, but not so inadequate as to call for interference, the Court fails to perceive that, in abstaining from further action, it showed itself insensible of its duties or responsibilities.

Whilst giving, as it is at all times prepared to do, the fullest consideration to the opinion of his Excellency in Council on the adequacy of the punishments awarded by the Courts in any class of cases, the Court is assured his Excellency in Council will admit that any Court (superior or subordinate) would violate its duty if in any particular case it suffered its own convictions as to the sentence which the ends of justice required it to pronounce or affirm to be overridden by any other consideration.

17. In view of the stricture publicly passed on the course pursued by the Court, the Court feels it due to itself to explain its opinions as to the duties of a Magistrate, and the law which in such cases as that of The Crown *v.* Fuller he is bound to administer.

The 196th Section of the Code of Criminal Procedure declares in what cases a Magistrate is to make a commitment. The Court reads this section, and instructs the subordinate Courts, that a Magistrate is to commit an accused person only when *he is satisfied*, from evidence which appears to him fairly trustworthy, that there is a *primâ facie* case against the accused, that he has committed an offence triable exclusively by the Sessions Court or High Court, or an offence which, *in the opinion of the Magistrate*, he himself is not competent to visit with an adequate sentence. Where, then, a Magistrate, acting in good faith, gives effect to his own convictions, he simply does his duty, however unwisely, in dealing with the accused himself. If a Magistrate were to commit an accused person without being satisfied there were grounds or cause for the commitment, he would be guilty of a breach of duty, and of an injustice for which there is no remedy. On the other hand, if he has, through an error of judgment, failed to commit an accused person when he should have committed him, or passed on an accused person an inadequate sentence, the law provides for the revision of his proceedings.

18. But the Court is constrained to inform his Excellency in Council it could not direct the subordinate Courts that, on the facts disclosed by credible evidence in Fuller's case, it would be the duty of a Magistrate to commit an accused person either on a charge of culpable homicide or of voluntarily causing grievous hurt.

19. With some additions, and one slight alteration, those facts are correctly stated in the second paragraph of your letter. Kutwaroo, the deceased, was a well-developed and muscular man. Fuller struck him twice on the head and face with his open hand, and seized him by the scalp-lock. Kutwaroo fell to the ground, whether of his own accord, or by reason of force exerted by Fuller, the evidence leaves doubtful. He then rose and ran into an adjoining compound, a distance of two hundred or three hundred yards, where he again fell down. In the report of the *post-mortem* examination, Dr. Christison records that there were no external marks of violence, that the spleen was ruptured on its inner surface, and that "the cause of death was probably a fall or a blow over the spleen," and that a slight injury might be sufficient to cause this result. On cross-examination in the Magistrate's Court, Dr. Christison deposed that, in his opinion, a man receiving so serious an injury of the spleen as that he had described would have been unable to do anything in the way of exertion afterwards, as he would be rapidly weakened by the loss of blood, and that he should not have expected a man to be able to run two hundred or three hundred yards after receiving the injury described.

20. It also appears from the record that the Magistrate was careful to inquire of all the witnesses whether Fuller was in the habit of striking his servants. The coachman, who had been in Fuller's service for fourteen months, swore that Fuller

Fuller had not during that period on any other occasion beaten any of his servants.

21. On referring to the Court's letter in answer to the Secretary to Government, North-Western Provinces, it will be seen that the Court so expressed itself as to leave it open whether the fall in Fuller's compound, which the Court considered the more probable cause of death (for it was not shown that Fuller had struck the deceased over the spleen), was the direct or indirect result of the assault, and that the Court adverted to the medical evidence, showing that the injury might have been occasioned by moderate violence or by a fall. But, assuming the injury to the spleen was the direct result of the act of Fuller, the Court would be unable to hold that, under the circumstances, Fuller could by the law of India have been convicted, or properly placed on his trial, for either of the grave offences suggested in the 7th paragraph of your letter.

22. The law of India relating to offences against the person differs materially from the law of England. Under the law of England, a man who commits an unlawful act, and in the commission of such act involuntarily causes death, is guilty of murder, if the unlawful act be a felony, or what is known to the law as a *malum in se*; and he is guilty of manslaughter if death ensues from any other wrongful act committed without justification or excuse.

The framers of the Indian Penal Code denounced these principles of the law of England as unworthy of enlightened legislation. Speaking generally (for there are exceptions), they proceeded on the principle that a man should be held criminally responsible only for such results of his act as he intended or knew to be probable.

23. To take the case suggested by Lord Macaulay: If a man, while stealing a handkerchief from a pocket, accidentally caused the explosion of a loaded pistol which the owner of the handkerchief carried without the knowledge of the thief, and in consequence of such explosion the owner was shot and died, the thief would by the law of England be punishable for murder, while by the law of India he could only be convicted of theft. To take another case: If a man, while shooting deer without leave in another's park in sport—without any felonious intent, and after having taken every reasonable precaution to avoid injury to bystanders,—by his shot kills a bystander and a deer, he is by the law of England amenable to a charge of manslaughter, whereas by the law of India he is amenable only to a charge of mischief in killing the animal.

24. By the law of India, as by the law of England, a person causing bodily injury to another who is labouring under a disorder, disease, or bodily infirmity, and thereby *accelerating* the death of that other, is deemed to have "caused his death." Nevertheless, every causing of death does not amount to the offence of culpable homicide. Unless it be proved that a person who has caused the death of another caused death with the intention,—

(1.) To cause death;

(2.) To cause bodily injury likely to cause death;

(3.) To cause such bodily injury as he knew to be likely to cause death to the person to whom the harm is done; or,

(4.) To cause bodily injury to any person, sufficient in the ordinary course of nature to cause death;

or with the knowledge—

(5.) That he was likely by his act to cause death; or,

(6.) That his act was so eminently dangerous that it must, in all probability, cause death, or such bodily injury as is likely to cause death,

the person who has caused death cannot, by the law of India, be convicted of culpable homicide of either description. [*Note on the Amendment of the Penal Code by the Hon. J. F. Stephen.*]

25. Nor can a person be convicted of the offence of *voluntarily* causing grievous hurt, unless it be proved that he caused one of the descriptions of hurt defined in the Code as "grievous" hurt either by means whereby he intended to

cause such hurt, or by means which at the time of employing those means he knew or had reason to believe to be likely to cause it. (Indian Penal Code, Section 39.)

26. In Fuller's case there was no evidence that he had committed any of the kinds of hurt defined in the Code as "grievous hurt," and although a person is by law presumed to know and to intend the ordinary and probable result of his acts, the result could hardly be declared ordinary or probable, while the circumstances rebutted the presumption of intention or knowledge to commit either culpable homicide or grievous hurt.

27. If it be held that, because disease of the spleen is not uncommon in this country, and because, when persons are afflicted with the disease in a particular form, death may result from very slight violence, therefore, every person must be presumed to know that in striking a Native he is likely to cause death, it follows that every person, as well Native as European, who strikes a Native is amenable to a far more serious charge than that under which such offences are now usually punished.

The Court, in view of the consequences, does not find itself justified in directing the subordinate Courts to adopt a presumption which the infrequency of a fatal result does not appear to warrant.

28. Your letter contains no allusion to the 304th section of the Indian Penal Code, enacted in 1873, which renders a person criminally responsible when death results from his rash or negligent act. It is presumed that this provision of the law did not appear applicable, and with this view the Court is disposed to agree.

29. A section drafted in 1870, which provided for the punishment of illegal killing, and defined that offence as the causing of death by an illegal act in cases other than those which constitute culpable homicide, would have met the circumstances assumed in Fuller's case; but the section was withdrawn or rejected in Committee, and it is clearly opposed to the principles on which the Code was framed.

30. In the opinion of the Court, Fuller, although he caused hurt, and more than hurt, only intended to cause hurt, and only used means which he knew or had reason to believe to be likely to cause such hurt. He was therefore properly convicted of voluntarily causing hurt without adequate provocation.

31. In the view taken by the Court of the law it is bound to administer, that ordinarily an accused person is liable to punishment only for such results as he intended or knew to be probable, the Court could not direct the subordinate Courts that on such facts as were disclosed in Fuller's case a heavier sentence should have been imposed than a Magistrate is competent to pass on a European British subject, namely, rigorous imprisonment for three months and a fine of 1,000 rupees, nor that a much lighter punishment than a Magistrate is competent to inflict would not have satisfied justice.

32. Furthermore, the Court would be unable, in the view it entertains of the law, to direct the subordinate Courts that, in awarding the punishment of fine, they should regard the compensation due to those who are indirectly injured by the commission of an offence.

The Court admits that a Magistrate may properly consider whether compensation has been voluntarily made by the offender, because such an act is an indication of contrition. But, even in this respect, the Magistrate must exercise judgment, otherwise it would be competent for the rich to secure a partial immunity from the consequences of their offences. But where no compensation has been voluntarily made, it is the duty of the Magistrate in imposing a fine to have regard only to the ends of justice (that is to say, the deterring others from the commission of the offence) and the means of the offender. The 308th section of the Code of Criminal Procedure does not convert a court of criminal justice into a forum for granting civil relief. When the Magistrate has determined the amount of the fine he should impose in view of the considerations above mentioned, he is empowered to order the payment "to the complainant or the party injured," or both, of the whole or a part of the fine as compensation for

the expenses of the prosecution, or for the offence, and "in any subsequent civil proceedings relating to the same matter" the Court must take into account the sum so awarded.

33. But the relations of Katwaroo were not left without a remedy, inasmuch as the Indian Act XIII. of 1855 allows the wife, husband, parent, and child of a person whose death has been caused by a wrongful act to maintain a suit and recover damages in respect thereof.

34. In determining what degree of punishment is required in the interest of the public, the Court is accustomed to consider whether an offence is increasing or decreasing in prevalence. The circumstance that the class of offence which evoked the indignation of his Excellency in Council is dying out argues that the sentences heretofore awarded by the Courts have not proved insufficient for the ends of justice. The Court desires to assure his Excellency in Council that it views such offences with as much abhorrence as has been expressed by the Government of India, and that should necessity be shown, it will not be slow to avail itself to the utmost of the powers confided to it for their repression, and to point out to the subordinate Courts that severity has become a duty.

35. The Court is constrained to express its apprehension that the imposition on a magistrate of a severe penalty, for what in any view was a mere error of judgment in a single instance, is calculated to deter from the impartial discharge of their duty all those officers who are dependent on the Executive for their advancement. The Court therefore ventures to solicit his Excellency in Council to reconsider the orders passed on the Joint Magistrate, Mr. Leeds, an officer who during a long service has, by his ability and diligence, earned the respect of the High Court, and, it is believed, the confidence of the Local Government, and whose action could not but have been influenced by the views of the law entertained by the Court to which he is subordinate.

36. Should his Excellency in Council be unable to resolve the questions suggested in the 2nd to 10th and 15th paragraphs of this letter in a sense favourable to the independence and authority of the High Courts, the Court prays that the points raised may be referred for the consideration and orders of the Most Noble the Principal Secretary of State for India.

I have, &c.
(signed) *W. Tyrrell*, Registrar,
High Court, North Western Provinces.

No. 647A, dated *Naini Tal*, the 31st August 1876.

From *B. W. Colvin*, Esq., Officiating Secretary to the Government of the North Western Provinces, to the Officiating Secretary to the Government of India, Home Department.

IN continuation of my letter, No. 610A, dated 15th August, I am directed to forward, for the consideration of his Excellency the Governor General in Council, the accompanying Minute* recorded by the Honourable the Chief Justice of the High Court of Judicature for the North Western Provinces regarding the case of *Regina* v. *Fuller*.

* Dated the 18th of August.

MINUTE by the Honourable Sir *Robert Stuart*, Chief Justice, North Western Provinces, respecting the Resolution of the Government of India in the Case of *Regina* v. *Fuller*.

THE terms of the Court's letter to the Government of India on the published resolution in *Regina* v. *Fuller* were carefully considered by me, and, in full concurrence with my colleagues, had and have my entire assent. But the matters embraced in that letter have suggested to my mind considerations, my views as to which I desire to record in this form.

 2. That

2. That letter by the Court raises and determines four very serious questions. The first relates to the authority and powers of this High Court; the second has regard to the relative authority and powers of his Excellency the Governor General in Council; the third deals with the merits of the case of *Regina* v. *Fuller*; and fourth, and in connection with these merits, and generally, the position of Mr. Leeds, who tried, convicted, and sentenced Fuller.

3. It results from the examination afforded by paras. 4, 5, and 6 of the Court's letter, that the High Courts of Judicature in India are not the Courts, in any sense, or in any degree, of the Government of India, or of his Excellency the Governor General in Council, but the Courts of Her Majesty the Queen, constituted and established by Her Majesty, not arbitrarily or for any undisclosed reasons, but constitutionally, on the public grounds and conditions, and for the purposes and with all the rights and privileges with which Her Majesty has thought fit to invest them: the principal of these being that the High Courts, or any of the Judges thereof, were not to be answerable for any act of duty done in virtue of their office to any authority whatever, save that of Her Majesty herself in Council. This distinctly and sufficiently appears from the express terms of the Charters of the several High Courts; and with respect to the High Court Act, 24 & 25 Vict. chap. 104, such characteristic quality and position of the High Courts is one of the provisions applicable to the old abolished Supreme Courts, which, by Sect. 11 of the said Act, are revived and applied to the substituted High Courts, as will presently appear.

4. The 9th section of the Statute 24 & 25 Vict. chap. 104, referred to in para. 5 of the Court's letter, further provides that "the High Court to be established in each Presidency shall have and exercise all jurisdiction, and every power and authority whatsoever, in any manner vested in any of the Courts in the same Presidency abolished under this Act at the time of the abolition of such last-mentioned Courts;" and by Section 10 of the same Act, it is provided that "all jurisdiction now exercised by the Supreme Courts of Calcutta, Madras, and Bombay respectively over inhabitants of such parts of India as may not be comprised within the local limits of the Letters Patent to be issued under this Act establishing High Courts at Fort William, Madras, and Bombay, shall be exercised by such High Courts respectively." Section 11 provides that all laws then in force applicable to the abolished Supreme Courts, or to the Judges of those Courts, "shall be taken to be applicable to the said High Courts and to the Judges thereof respectively, so far as may be consistent with the provisions of this Act and the Letters Patent to be issued in pursuance thereof, and subject to the legislative powers in relation to the matters aforesaid of the Governor General of India in Council; and Section 12 saves all proceedings pending in the abolished Courts, and provides that "such proceedings, and all previous proceedings in the last-mentioned Courts, shall be dealt with as if the same had been had in the said High Court, save that any such proceedings may be continued, as nearly as circumstances permit, under and according to the practice of the abolished Courts respectively."

5. By Section 16 of the same Act Her Majesty is empowered by Letters Patent to erect and establish a High Court of Judicature for the North Western Provinces, with the like jurisdiction, powers, and authority as were conferred on the other three Courts, as far as circumstances may permit; and this intention has been fully carried out by the Court's charter, issued by Her Majesty's warrant under the Great Seal of England on the 17th day of March 1866, in the 29th year of Her Majesty's reign.

6. In order adequately to apprehend and appreciate the full force of these provisions of the High Court Act, it is necessary to advert to the terms of the charters of the abolished Supreme Courts. They are all three to the same effect, but that of Calcutta may be selected for the purposes of this Minute. This charter, after reciting the Act of Parliament under which it was granted, and stating the names and position of the Judges who were to compose the Court, goes on to provide as follows:—"And it is Our further will and pleasure that the said Chief Justice and the said Puisne Justices shall severally and respectively be, and they are, all and every of them, hereby appointed to be justices

justices and conservators of the peace, and coroners, within and throughout the said provinces, districts, and countries of Bengal, Behar, and Orissa, and every part thereof; and to have such jurisdiction and authority as Our justices of Our Court of King's Bench have, and may lawfully exercise, within that part of Great Britain called England, by the common law thereof;" and it is further and subsequently provided in the same charter that "the said Supreme Court of Judicature at Fort William in Bengal should also be a Court of Equity, and shall and may have full power and authority to administer justice in a summary manner, as nearly as may be, according to the rules and proceedings of Our High Court of Chancery in Great Britain; and upon a bill filed, to issue subpœnas and other process, under the seal of the said Supreme Court of Judicature at Fort William in Bengal, to compel the appearance, and answer upon oath, of the parties therein complained against, and obedience to the decrees and orders of the said Court of Equity, in such manner and form, and to such effect, as our High Chancellor of Great Britain doth, or lawfully may, under our Great Seal of Great Britain." And it was also provided by the charter that the Supreme Court, besides being a Court of Common Law, like the Court of Queen's Bench in England, and a Court of Equity, like the Court of Chancery in England, should be a Court of Oyer and Terminer and Gaol Delivery, and "shall have the like power and authority as Commissioners or Justices of Oyer and Terminer and Gaol Delivery have or may exercise in that part of Great Britain called England, * * * * and to proceed to hear, examine, try, and determine indictments and offences, and to give judgment thereupon, and award execution thereof, and in all respects to administer criminal justice in such and the like manner and form, or as nearly as the condition and circumstances of place and persons will admit of, as Our Courts of Oyer and Terminer and Gaol Delivery do or may in that part of Great Britain called England, * * * * and to all other acts which shall be necessary for the due administration of criminal justice in such manner and form, or as nearly as the circumstances and condition of the case will admit, of Our Courts of Oyer and Terminer and Gaol Delivery may do in that part of Great Britain called England." And there are various other provisions of the same nature, all showing that the Supreme Court established by the charter was not only to be modelled in the English form in all respects, but to have its jurisdiction and authority protected and enforced on the same constitutional principles as those recognised in the case of the English Courts, the only difference being that, instead of proceeding by appeal and error in Parliament, the appeal from the Supreme Court was to be to the King in Council.

7. The charter of the Supreme Court contains anxious provisions where the old East India Company is a suitor before it, and for compelling the Company's appearance and their pleading where necessary; and with respect to the Governor General and his Council, the only provision which the charter contains relates to the safety of their persons and exemption from arrest, although in this respect the Chief Justice and Judges of the Supreme Court are placed on the same footing, and are similarly exempted.

8. The Supreme Court was thus thoroughly independent, and amenable to no authority whatever in the exercise of its official and judicial powers, save and except only to the King in Council, and even then in regard only to "judgments, decrees, orders, or rules."

9. Such were the character, authority, and powers of the old Supreme Courts; and if there was nothing else on which to base the complete independence of the High Courts as the successors of the former, in the exercise of their functions, the above recitals would surely be enough, showing, as they do, not only that the Supreme Courts enjoyed the independent authority and prestige of English Courts, but that they were judicially answerable solely and only to the King in Council. The express words of the charters of the High Courts, however, in which there is not the slightest recognition, directly or indirectly, or by any kind of implication, of any authority over, or right of interference with, these Courts by the Governor General in Council, or any other prerogative authority whatever in India, leave no doubt on the subject.

10. Irrespective, however, of any such provisions of the law, the reasons and

the policy which determined Parliament and the Crown to invest Her Majesty's Courts and Her Majesty's Judges in India with such official and judicial independence are very apparent.

11. In the first place, the investment of the Courts with such independence exceedingly increases and magnifies the responsibility of the Judges to Her Majesty for any errors, misconduct. or misfeasance with which they might be chargeable. In the second place, there are no persons or authorities in India possessed of qualifications which could fit them to supervise or in any way control Her Majesty's Courts; for, I say it with all respect, his Excellency and his Council. with one exception, are not, legally and technically, learned persons. They have not within themselves as a body, necessarily and intrinsically, any official, forensic, or judicial training or experience in matters of law, and they could not, however justly disposed (and they could not be otherwise than justly disposed), satisfactorily perform the duties of directors or superintendents of the Courts. I say with one exception, although even my honourable and learned friend Mr. Hobhouse, who so ably fills the place of Legal Member of Council, would not, I am sure, maintain that he is either entitled himself to exercise, or that, by force of his great knowledge and position, he can impart to his Excellency and the other Members of Council any Pretorian powers in the way of supervision, direction, or control over these Courts. And, in the third place, any such authority on the part of the Governor General in Council would lead to the anomaly of the Crown acting inconsistently with, if not contradicting, not only its own Royal Charters, but the legislative enactments of the Imperial Parliament itself. His Excellency the Governor General in Council in India acts in a purely delegated character, and exercises delegated authority, and not independently of Her Majesty the Queen and her Government, as represented by her Secretary of State; and all his acts, resolutions, and proceedings are subject to Her Majesty's allowance or disallowance; and any resolution, therefore, of his Excellency at variance with, or purporting to be at variance with, the prerogatives and independence of the Queen's Courts, would impose on Her Majesty and her Ministers the painful and anomalous duty of considering whether they would treat the Indian Courts in a manner different from, and other than, the consideration and respect which, in a similar or corresponding issue, would undoubtedly be shown by another Department of Her Majesty's same Government to the Courts and Judges in England. But this I hope I may believe could not possibly be. No Home Secretary in England would dream of interfering, by the expression of regrets, or of opinions of approval or disapproval, with the manner in which the English Judges discharge their duties and responsibilities; and it appears to me difficult, if not impossible, to understaad that Her Majesty's Secretary of State for India would be otherwise disposed in the case of Her Majesty's Indian Courts.

12. The only element in the High Courts which might be supposed to favour, however covertly, any opposite contention might perhaps be imagined to be the presence in the High Courts of Judges who are the representatives and successors of the old Sudder Courts, which undoubtedly were to a great extent under the influence and control of the Government of India, and even of the Local Government. But the Sudder Courts were entirely abolished by the High Court Act, and it is important to observe that it is *after*, and not before, the section abolishing these Courts that its provisions determining the independent character of the Court and the appeal to Her Majesty in Council are to be found. Nor, unlike the provisions relating to the old Supreme Court, to which I have referred as having been revived and made applicable to the High Courts, is there a single word or expression in the Act, or in any of the High Court's charters, saving or continuing any portion, feature, or quality of the Sudder Courts. The independent character, therefore, of the High Courts is wholly unaffected by the presence, if any, in its constitution of the Sudder Court element.

13. The ninth paragraph of the Court's letter states that the distinction between the functions of the Executive Government and the High Court have, in a measure, been recently recognised by the Governor General in Council, on the occasion of a reference made by the Hon. Sir William Muir, now a Member of Council, but then Lieutenant Governor of these Provinces. But it appears to me that

that it would be useful to advert more fully to the circumstances of that case, showing how completely justified the Court is in referring to it.

14. That was the case of Girdhari Lal *v.* Hearsey, and the question which was ultimately referred for consideration to the Government of India arose in this way. While at Dehra Dún in camp, in the cold season of 1872 and 1873, the Lieutenant Governor paid a visit to the jail, and found there Girdhari Lal, the plaintiff in the suit, who ultimately, by reason of the defendant's plea of minority, lost his case in the High Court with costs, and it was for these costs, which he was unable to pay, that he was in jail.

15. The man being in prison under such circumstances excited the Lieutenant Governor's sympathy, and his Honor had recourse to the expedient of drawing up a resolution, dated 23rd January 1873, the third paragraph of which was as follows:

"The Lieutenant Governor accordingly thinks that the Subordinate Judge should take the earliest opportunity of proceeding under Sections 280 and 281 of Act VIII. of 1859, and calling on the prisoner to file a list of his property, against which proceedings may be taken; and in default of any further means of payment being shown to exist, that the Subordinate Judge should consider whether, under the provisions of the law, he should not be released from further imprisonment." It will be observed that there is here, directly from the Lieutenant Governor to the Subordinate Judge, what is neither more nor less than a judicial order that certain procedure should be adopted for the prisoner's release from jail, and it was ordered by his Honor that a copy of this resolution should be sent to the Subordinate Judge at Dehra and to the High Court.

16. The irregularity of this proceeding on the part of his Honor at once attracted the attention and action of the High Court; and a correspondence ensued, in which the Court pointed out to the Lieutenant Governor the error he had committed, under a mistaken view of his position and duty, by interfering, as he had done, with the Court's process, informing him distinctly that "it was the interference with a judicial officer's procedure in his Court that the Court thought it necessary to notice. It regrets to see, from the concluding portion of the 2nd paragraph of your letter, his Honor still justifies his action." The correspondence ended by the Court's requesting that a complete copy of it should be forwarded to the Government of India.

17. In due time the Government of India communicated its opinions on the case, and there is now before me the letter from the Government of India (marked Home Department, Judicial, dated the 20th March 1874), in which these opinions are explained. In this letter, his Excellency in Council points out a misapprehension on the part of the Lieutenant Governor of the precise question for the determination of which the High Court had requested that the correspondence might be forwarded to the Government of India, and correcting that misapprehension, his Excellency proceeds to remark as follows:—"But the matter upon which the High Court throughout this correspondence have laid stress relates, not to the tenor of these instructions, given on the spot after a visit to the jail, but to the form and substance of the instruction contained in the resolution, which was published and communicated to the Court and to the Subordinate Judge of Dehra, in which the Subordinate Judge was prompted to proceed under certain sections of the Civil Procedure Code, and to call on the prisoner to file a list of his property. * * * * And what the High Court contend is, that instructions and suggestions, such as those contained in this resolution of the 23rd January, as to the course which they should pursue in the discharge of their judicial duty, should not be communicated to judicial officers subordinate to the Court. Upon this point I am to say that his Excellency the Governor General concurs with the opinion expressed by the High Court, and considers that it is undesirable to issue such instructions, or to publish them in a resolution. And though his Excellency in Council is by no means prepared to lay down that the chief executive authority of a province may not properly and usefully admonish Judges in other departments of action, still less that he may not see that all remedies which the law permits are fully applied to remove unnecessary hardships in the law's operations, yet I am to observe

observe that functions of this kind should be exercised with caution, especially having regard to the statutory powers of superintendence vested in the High Court;" and the letter of his Excellency ends thus :—" Though of opinion that the terms of the resolution in question have been justly objected to by the High Court, the Government of India wish at the same time to express their entire approval of the object which the Lieutenant Governor sought to attain by the instructions of December 1872, and with the tenor of those instructions." This letter from the Government of India appears to be conclusive as to its understanding of the distinction between the functions of the Executive Government and the High Court.

18. The independence of the High Courts in relation to the Executive Government being thus thoroughly established, and also fully recognised by the Government of India itself, we were scarcely prepared for the communication from the same quarter which, to our extreme surprise, we have received, and which has occasioned this discussion. For that such a communication at least purports to, and shows a disposition to, invade the Court's independence is clear, even if it actually and legally does not and cannot have that effect; and the Court is entitled to complain of, and to remonstrate against, such an attitude on the part of the Executive Government towards it, as relatively an independent institution.

19. The "regret" expressed by the Governor General in Council in the fourth paragraph of the letter referred to is really a judgment by his Excellency, arrived at by his mind being judicially exercised, and after calling the High Court to his bar. Now, the mere statement of such a view of the matter, a statement which, however apparently extravagant, is nevertheless, with reference to the scope of the paragraph, a perfectly correct one, is almost enough to show how untenable is the position taken by the Government of India towards the High Court. But this false position (if I may, without disrespect, say so) on the part of the Government towards the Court will further appear from what actually occurred in the case of Regina *v.* Fuller, so far as the Court is concerned.

20. That case was first brought to the knowledge of the Court by a demi-official letter from the present Local Government of these Provinces to Mr. Tyrrell, the Court's registrar, dated the 31st of March last, enclosing the record of the case, and begging that it might be laid before the Judges, and asking their opinion as to the adequacy of the sentence. This was the first time the case came before the Court at all, and it will be observed that, however judicially the Court may be supposed to have been consulted by the Local Government, the case did not come before the Court in the form of of an appeal, or by way of revision, or by any method or proceeding which necessitated or involved any hearing *in foro*, with a judicial determination thereon. The Court's opinion was simply asked as a matter of courtesy, and in accordance with a practice on the part of the Local Government of consulting the Court simply by letter, where any legal difficulty was experienced in its administration —a practice, however, which I have often felt was open to many objections. Of course the Court is not bound to answer such inquiries, but the disposition of the Judges is always, if possible, to assist the Government, although they generally keep in view the possibility of the matters so submitted to them being brought before them in their proper judicial capacity.

21. On this subject the observations in the Court's letter leave nothing material to be added, and they ought, I think, to be conclusive, to the mind of any one of judicial experience in criminal cases in India, as to the position in which the High Court was placed, not by any act of its own, but on the unanticipated invitation of the Local Government.

22. As stated in the Court's letter, any fault that could be imputed to Mr. Leeds was at most an error of judgment, and in a single instance, and to punish him in the manner intimated in the Government's letter appears to me to be not only unjust and unreasonable, but also contrary to law. For Mr. Leeds, however amenable in a general sense, personally and socially, to the Government of India and their subordinate Governments, was not in any way answerable to any Government authority for his *judicial* conduct. In that respect,

spect he is amenable only to the High Court, and it is not even usual to entertain complaints against subordinate judicial officers without communication and consultation with the High Court as the legally constituted superior authority.

23. Respecting Mr. Leeds' conduct, however, it does not appear to me that he was guilty of any serious error of judgment; and I humbly venture to think that, having regard to the principles of culpability recognised by the criminal law, Mr. Leeds' comparative immunity from error is shown in the manner in which the facts are referred to in the letter of the Government of India itself. It is there stated that Mr. Fuller struck the syce with his open hand on the head and face, and pulled him by the hair, so as to cause him to fall down. Mr. Fuller and his family drove on to church; the syce got up, went (it would have been more correct to have said ran) into an adjoining compound, and there died almost immediately. It would appear from the medical evidence that the spleen of the deceased was in such a diseased state that very slight violence, either from a blow or fall, would have been sufficient to have caused death. Indeed, it is plain that a mere accident to the man, such as his tripping while walking or running, might have had this fatal result, but that there is nothing in the case to show that such extreme and perilous sensibility of body was known to, or could have been reasonably suspected by, Mr. Fuller; and his guilt or criminal responsibility would have been the same, and neither more nor less, if Katwaroo had not died. The letter of the Government of India goes on to state that "the death of Katwaroo was the direct result of the violence used towards him by Mr. Fuller," and his Excellency in Council observes that "the High Court assumes the connection between the two events as being clear," but adding, "yet, on reading Mr. Leeds' judgment, he does not find that that gentleman ever considered the effect, or even the evidence, of this connection." The portion of the Court's letter thus referred to is in these terms:—

"The medical evidence shows that the spleen was in a diseased condition; that death was caused by the rupture of the spleen; that this injury might have been caused by moderate violence, or by a fall; and that there were no external marks of injury on the body. Under these circumstances, it appears that no great violence was used, and that the accused neither contemplated, nor could have foreseen, that severe hurt would have resulted from the degree of violence exerted by him, much less that it should have been followed by the lamentable result of death."

It will be observed that Mr. Fuller's not very violent blow and Katwaroo's death are here stated as connected facts, but not in such a way as to show Mr. Fuller's culpability in regard to the death. In fact, it is unnecessary to dwell on the mere fact of the connection between the two circumstances, the material and vital question being, not whether the death did in fact result from the blow, but whether Mr. Fuller had such a guilty knowledge of the probable consequences as to make him really responsible for the fatal occurrence. But there is nothing in the record to show any such guilty knowledge on his part, or that he intended to occasion a hurt which would ordinarily or probably cause death, and every circumstance ought to have been distinctly proved, not left to any kind of inference or suspicion. With respect to Mr. Leeds' judgment, I must really venture to differ from his Excellency in Council, and suggest that that judgment proceeds on the evidence before the magistrate; that it distinctly states the fact of the blow or assault, as it may be called, and also Katwaroo's ultimate death; but it does not state, and, with great respect and deference, I submit it very properly does not state these as necessarily connected facts against Mr. Fuller in the way of measuring his culpability. Mr. Leeds was trying the case under Sections 319 and 323, Indian Penal Code, and, with the judgment now before me, I cannot see that he omitted any material consideration in any way arising out of the evidence.

24. Mr. Leeds cannot be charged with any mistake or error of judgment in taking a faulty view of the case before him under Sections 319 and 323, and it is correctly stated in the Court's letter that he could not have committed Mr. Fuller for trial on a charge of culpable homicide, or of voluntarily causing grievous hurt. But if, by any straining of any section of the Penal Code, Mr. Fuller had been

been committed for trial before the Sessions Court or the High Court, the result would in all probability have been, and, I think, must have been, the same—if, indeed, the fine might not have been even less, for the syce had violated his duty and disobeyed his master's orders, and had incurred at least a severe reprimand, under which he might have equally taken to his heels, as Native servants often do when they are scolded, and thus ruptured his diseased spleen; for, on the evidence, it is not at all improbable that the running into the contiguous compound, ending with the fall there, caused the injury to the spleen and the death, or at least materially contributed to these two results.

25. Stated, however, at its worst, Mr. Leeds was guilty of nothing except a mistake or error of judgment, and if such mental shortcoming is to be visited with not merely judicial correction, but with personal punishment to the erring officer, there is not, I will undertake to say, a single magistrate of any grade, European or Native, in these Provinces—I might venture to say in all India—who could pass scatheless through such an ordeal. My experience, indeed, as a Judge of a High Court, does not point to any particular tendency on the part of magistrates to adopt a lenient view of cases on trial before them, whether the accused persons are Europeans or Natives, but quite the reverse; and I have been particularly struck with the severity which Native magistrates sometimes evince in these cases. Nor can I for a moment believe that, in his investigation of Mr. Fuller's case, Mr. Leeds was in any degee actuated, either in favour of Mr. Fuller or against Katwaroo, by any feeling relating to their being of different races. There is not the slightest indication, either in his judgment or in the record of Mr. Fuller's case, to indicate the existence of such a feeling, and I cannot appreciate the reasonableness of visiting Mr. Leeds with penal consequences, simply because he performed his duty according to the light of his intelligence, and with no improper or corrupt motive. He has always borne the highest character for industry and care, and no officer subordinate to the High Court has been held in higher esteem by the Judges. I find he has been in the Civil Service of India for about 15 years, and that he has actually served for about 12, and during the whole of that time no fault of temper or conduct has been entertained or recorded against him. I trust, therefore, that the reconsideration of this matter, as requested in the Court's letter, may have its intended effect, and that the penalty recommended to be inflicted on Mr. Leeds may be cancelled. Should this not be conceded, my fear is that the moral effect of such a state of things on the young magistracy of the country may be not such as the Government of India would desire. Already there have been indications of this, and I myself have recently had occasion to repress the undue zeal of some young magistrates.

26. In a previous part of this Minute I have referred to the regret expressed by his Excellency in Council respecting the conduct of the High Court in this matter, as being a judicial opinion which invaded the Court's independent authority; and it is, I think, scarcely too much to say that, if the power to administer such a censure could be justified, there is not a prosecution, suit, appeal, or any other judicial proceeding of the High Court with which the Government of India could not similarly interfere, not even excepting cases in which the Government of India itself is a party, and it is frequently a litigant. The very case under consideration is that of Regina *v.* Fuller, and his Excellency in Council might have been reminded that he himself, and not the friends of the deceased man, was the real and legal prosecutor, and, in that sense, Mr. Fuller's litigious adversary.

27. The Court's letter expresses regret on the Court's part that no intimation was conveyed to it of the intention of his Excellency in Council to take action, and no opportunity afforded it for explanation or statement before the publication of his Excellency's letter in the Gazette; and the Court further states that Fuller's case was, it is believed, first brought to the notice of the Government of India by published extracts from the vernacular press, and that these published extracts were not furnished to the Court; and the course thus pursued towards the Court does not appear from the Government of India's letter itself to have been, nor has it been in any way, explained, and this I deeply regret.

28. In

28. In some European countries the judicial office is not held in the high esteem with which it is regarded by the Government of Her Majesty the Queen and by the English Parliament, but is made subordinate to a Minister, who may, to a large extent, control the action of the Courts. But it is otherwise with regard to Her Majesty's Courts of Judicature, and Her Majesty's judges holding their commissions, as they do, direct from the Queen herself. These Courts and judges can even entertain and decide questions relating to the impugned validity of acts and proceedings of the Crown itself, and in India the High Courts can call in question the validity, and if necessary declare to be invalid, all acts, proceedings, and measures on the part of the Government which can be shown to be *ultra vires* of their province. And, so commissioned, this High Court will go on in the discharge of its duties and responsibilities, uninfluenced by any consideration other than the true exposition of the law and the sound administration of even-handed justice.

29. I have now, and only, in conclusion to assert, which I do most confidently, that no Court, body, or constituted authority could treat the natives of this country with greater consideration on all suitable occasions than this Court invariably does, never allowing any opportunity to pass of rebuking any misconduct towards them.

R. Stuart.

High Court, Allahabad,
North Western Provinces,
18 August 1876.

EXTRACT from MINUTES of a Meeting of the Council of *India*, held on Tuesday the 20th March 1877; the Marquis of *Salisbury* in the Chair.

THE two Despatches to India in the Judicial Department, reviewing and commenting on the proceedings in the case of Mr. Fuller, which were laid before Council on the 13th instant, were read, and, after long discussion, were, on the Question, approved, with certain alterations; Sir E. Perry being dissentient.

Ayes, 11; viz.:	No, 1; viz.:
Cassels, A., Esq.	Sir Erskine Perry.
Drummond, Hon. E.	
Ellis, Sir Barrow.	
Halliday, Sir F.	
Maine, Sir Henry.	
Montgomery, Sir R.	
Muir, Sir W.	
Strachey, Lieutenant General.	
Wilde, Major General Sir A.	
Wolseley, Major General Sir Garnet	
Yule, Colonel Henry, C.B.	

DISSENT by Sir *Erskine Perry*.

I MUCH regret that I feel compelled to record a dissent to these Despatches which in effect express approval of the proceedings of the Government of India in the Fuller case.

Every one must appreciate the motives which induced Lord Lytton's Government to denounce the practice of English gentlemen assaulting their native servants. If that practice is prevalent, which, however, I entirely disbelieve, Lord Lytton was not only justified, but highly to be commended, for expressing his strong personal disapprobation of it; but between such course and the Executive Government taking it upon itself to expound nice questions of criminal law and procedure, to find fault with the highest judges of the land because they differ from them, and to visit with a "severe penalty," a judge of

high character for ability and of long standing, because he has given a judgment that the Government disapproves, is a very wide gulf.

I have carefully examined the law and the proceedings in this case, and I am clearly of opinion with the High Court of Agra that no fault is imputable to the magistrate who pronounced the decision.

The real question before us is not whether the Government has the *right* to censure the decisions of the Supreme Courts of Justice, or to punish inferior judges for judicial indiscretion. Instances may readily suggest themselves of a "miscarriage of justice," or of "judicial corruption," such as is indicated in the Government Despatch (para. 28), where the right of criticism which belongs to every member of a free community can certainly not be denied to the Government with respect to the inferior judges, and in a country like India, the Executive is compelled to take notice of any gross incapacity in its magistrates, even to the extent of removal from office.

But the questions to be determined in this case are whether the Government has displayed a wise discretion in their interference with the decisions of the legal tribunals, and whether they have treated Mr. Leeds, the magistrate, with justice.

The first is a constitutional question of the very gravest character; the second is a purely legal one.

On the former of these subjects I will be very brief. Government in India, as in other Asiatic countries, is necessarily despotic, but it is made reconcilable to the conscience of a free country like England, by the existence of two considerable checks; first, the power of appeal to this country against every act of injustice or caprice on the part of Government; and, second, the existence in India of an independent judiciary. It is, no doubt, inconsistent with the theory of despotic rule that independent tribunals should exist, with the power to set aside acts of Government as illegal; and the slavish Roman lawyers invented the convenient doctrine "*quod principi placet legis vigorem habet.*" It is also apparent that a well-meaning, paternal Government, may be often thwarted by the decisions of judges, who consider themselves bound to administer the law set before them, without reference to political considerations. Temporary evils, even, may occur under this head, whilst confused or imperfect laws are allowed to remain on the Statute Book; but the remedy is simple. Strafford probably thought he was administering perfect justice when he took upon himself to decide cases in Ireland, and sneered at the lawyers who thought that England should be governed by their Year Books; but the good sense of England has rejected this pretension, and holds, as the cardinal article of its political faith, that nothing short of glaring misconduct will justify the interference of Government with the Bench. No one can impute such misconduct to the Agra High Court in the present case; and I doubt greatly the expediency of reminding the Judges of India, who are claiming immunity from Government interference, that they hold their offices by the tenure which produced the most shameful subserviency to the Government, on the part of judges, that is recorded in history.

With respect to the decision pronounced by Mr. Leeds, a minute examination of the Indian law is required. Rightly or wrongly, but after great deliberation, the Indian Legislature has altered the law of England which makes every case of homicide, resulting from an illegal act, a felony, triable before a superior judge and jury. Such a course may be well calculated to promote the sanctity of human life. But Lord Macaulay and his colleagues thought it very unjust that, where death occurred as a mere casualty, or misadventure from a slight blow or push, it should be punishable as a crime; and they framed their law accordingly.

The effect of that law is to eliminate the fact of death altogether from the offence, in a case such as is above suggested. When then, on the facts proved before Mr. Leeds, it appeared that the defendant had only struck the deceased twice with his open hand, and that death ensued from the rupture of a diseased spleen, which might have been occasioned by a slight blow or fall, Mr. Leeds was quite justified in keeping the fact of death out of his consideration. The exact question for him to determine was the amount of penalty to be inflicted for the offence proved before him, and this is a matter which the law of India, like the law of England, leaves greatly to the discretion of the judge; such discretion is governed by many circumstances, which most frequently are known only to the presiding judge; the frequency of the offence, the necessity of making

making an example, &c., &c.; but it would be a difficult task for any criminal judge, if he were called upon to prove in every case that the exact amount of punishment he had fixed upon, during the excitement of a criminal session, was the most fitting. If I had been the presiding judge in Fuller's case, I think that I should have inflicted a larger penalty, for I should have considered the civil injury sustained by the family of the deceased. But it would have been a stretch of the law to have done so, and an assumption of the powers of the Civil Court, and a judge is certainly not to be blamed for being too logical in administering criminal law. But the chief fault imputed to Mr. Leeds is that, on the evidence before him, he undertook to dispose of the case himself, instead of committing it to the Sessions. An examination of the Indian law and Indian law books, shows that this charge is not only unsustainable, but that he would have proceeded contrary to the direct orders of his superiors if he had done so. What is aimed at in Indian Administration is that magistrates should exercise their summary powers of conviction, and not commit to the Sessions, except in cases where their powers of punishment do not suffice to meet the offence. The Penal Code is framed on this view. The High Court of Bengal, in a Circular Order of 1865, expressly ordered magistrates not to commit to the Sessions unless he "finds, from aggravated circumstances, that higher punishment is required than he can award."

The High Court of Agra inform us that the magistrates in their jurisdiction are instructed to commit to the Sessions only, "when, in the opinion of the magistrate, he himself is not competent to visit (the offence) with an adequate sentence."

If Mr. Leeds was of opinion that his powers to inflict 1,000 rupees penalty and three months' imprisonment were ample, and more than ample to meet the case proved before him, he would have been liable to the censure of the High Court if he had committed to the Sessions. Moreover, the High Court have deliberately decided in this case with all the evidence before them, that it was not the duty of Mr. Leeds to commit. The Government of India, without apparently having this evidence before them, and the Secretary of State, certainly without it, decide to the contrary.

But it is also said that as there was conflicting evidence, and as three out of the four eye-witnesses gave a graver character to the charge than which Mr. Leeds considered proved, it was his duty to send the case for trial before a jury. Such a canon of procedure cannot hold good with those who have experience of Indian Courts of Justice. The facility with which native witnesses can be got together to swear anything, the tendency of low castes to uphold one another by unblushing mendacity, is so well known, that any judge who committed a case for trial because a lot of witnesses deposed to facts that he wholly disbelieved, would be justly visited with the censure of the High Court. On the whole, I am of opinion that, in reply to the Despatch now before us, great praise should be attributed to Lord Lytton for his desire to protect the natives from oppression; the claims of independence by the High Court should be placed on a right basis, and the decison as to Mr. Leeds should be modified, so as, if possible, to do him justice.

(signed) *E. Perry.*

21 March 1877.

(Judicial, No. 5.)

To His Excellency the Right Honourable the Governor General of India in Council.

My Lord, India Office, London, 22 March 1877.

Para. 1. I HAVE received and considered in Council your letter of the 12th October 1876, No. 37, together with the letter of the Registrar of the High Court of the North West Provinces, and of the Chief Justice of that Court, enclosed therein.

2. These papers record the circumstances under which it seemed proper to your Excellency in Council to censure Mr. Leeds, Joint Magistrate of Agra, for

his proceedings in the case of Mr. Fuller, who was accused before him of an assault upon his servant, resulting in the death of the latter.

3. Your orders in this case have been commented upon at much length, both by the Court of the North West Provinces collectively, and by the Chief Justice of that Court separately: Exception is taken in these criticisms, both to the justice of the sentence passed upon Mr. Leeds, and to the propriety of any interference on the part of your Excellency's Government with the proceedings of the High Court, or of the tribunals subject to its jurisdiction. On the present occasion I will consider the first point only, reserving for another Despatch the grave constitutional questions raised by the protest of the High Court.

4. Two points in Mr. Leeds' conduct of this case are, in your judgment, open to censure. It was open to him to deal with the case himself, or to refer it to a higher Court. He decided to deal with it himself. When he had come to this decision, and had formed his judgment as to the precise legal character of the offence, it was open to him to inflict the full penalty within the scope of his powers, or to inflict a mitigated penalty. He decided to inflict a penalty so mitigated that, as you observe, it was merely nominal.

5. There can, I think, be no doubt that, upon these two points, Mr. Leeds possessed entire discretion to act according to his judgment, and for the mode in which that discretion was exercised he is, of course, responsible.

6. The fact that Mr. Fuller's violence resulted in the death of his servant, should, in your judgment, have led Mr. Leeds to remit the matter to a higher Court for trial, both because such a Court would have been more competent to sift the evidence on which the character of the offence depended, and also because, even if no graver offence had there been brought home to Mr. Fuller than that of which he was actually convicted, the higher Court would have possessed a far larger latitude of punishment. The same consideration should also, in your view, have induced Mr. Leeds, after he had decided to deal with the case himself, to have inflicted a severer penalty.

7. The High Court, on the other hand, dwells on the well-known departure of the Indian law from its English model in determining the effect of fatal consequences upon the criminal character of the illegal act.

"The law of India relating to offences against the person differs materially "from the law of England. Under the law of England, a man who commits "an unlawful act, and in the commission of such act involuntarily causes death, "is guilty of murder, if the unlawful act be a felony, or what is known to "the law as a *malum in se;* and he is guilty of manslaughter, if death ensues "from any other wrongful act committed without justification or excuse.

"The framers of the Indian Penal Code denounced these principles of the "law of England as unworthy of enlightened legislation. Speaking generally "(for there are exceptions), they proceeded on the principle that a man "should be held criminally responsible only for such results of his act as he "intended or knew to be probable."

And the Court developes this consideration at some length.

8. I infer from the pains which the Court have taken to expound the Indian law upon this point, that in their view your Government has censured Mr. Leeds for not taking the fatal issue into consideration in deciding on the quality of Mr. Fuller's offence. If you had done so, your orders, certainly, could not have been upheld. But I do not see how any such construction can be put upon your words. You confine yourself to those parts of the magistrate's duty which were undoubtedly matter of discretion, his resolution to decide summarily, and the nominal amount of his sentence. Upon these points I agree with you in thinking that Mr. Leeds, having a discretion, was bound so to exercise it as to discourage the employment of violence to servants, and to uphold in the public mind the sacredness of human life. He exercised it in a manner likely to bring about exactly opposite results, and in so doing became justly obnoxious to your censure.

9. The indiscretion of disposing by summary hearing of an offence which had caused a sacrifice of life was enhanced by the fact that the evidence upon the question of intention was certainly conflicting; while upon the intention depended the question whether the offence was trivial, and falling within the cognisance

cognisance of the magistrate, or a much graver offence, reserved for the superior tribunal. Three witnesses swore that, in addition to the blow with his hand, Mr. Fuller kicked his servant in the stomach. One witness "made no mention" of this circumstance, and the accused denied it. If the three witnesses were correct, there can be little doubt that Mr. Fuller was guilty of a more serious offence, which Mr. Leeds had no authority to dispose of summarily. Mr. Leeds believed the accused, supported by the silence of one witness, and disbelieved the three who testified against him. Some of the reasons he gives for this view are certainly open to serious criticism; yet it is quite possible he may have been right as to the facts. But this conflict of evidence very much adds to Mr. Leeds' responsibility in deciding, as he practically did, that the Superior Court could not have convicted Mr. Fuller of the graver crime.

10. The fatal consequence of Mr. Fuller's violence did not, according to Indian law, increase its criminal character; but it did increase most materially the importance of ascertaining the exact nature of the crime committed, not only accurately, but in such a manner that the accuracy of the decision should be generally recognised. When death has been caused, it is of the utmost importance to satisfy the community that impartial justice has been done; and this necessity is specially urgent where the deceased is dependent and helpless, and the person causing death belongs to a superior class of society. In Western countries public feeling has been dangerously moved in such instances by the suspicion that an undue leniency was likely to be exercised on account of the difference in position between the deceased and the accused. Perhaps no such danger is to be apprehended in India; but the duty is not less imperious of guarding against a misconstruction which would be dishonouring to the law and would diminish the security of life.

11. It was, doubtless, not without pain that your Excellency inflicted a censure upon an officer to whose general conduct so many high authorities have borne favourable testimony. I do not doubt that you gave, and will continue to give, full weight to such important recommendations. But I am of opinion that the inadequate condemnation of misconduct such as that of which Mr. Fuller was guilty is likely, especially in India, to be attended with great public mischief, and therefore I think that you were fully justified in severely noticing Mr. Leeds' treatment of the case.

12. In conclusion, I must express my conviction that, in your course throughout this difficult case, your Excellency has been guided by an anxious care for the more helpless classes under your rule, and have to assure you of the warm sympathy of Her Majesty's Government with the feelings by which your conduct has been inspired.

I have, &c.
(signed) *Salisbury.*

(Judicial, No. 6.)

To His Excellency The Right Honourable The Governor General of India in Council.

My Lord, India Office, London, 22 March 1877.

Para. 1. I HAVE made some observations in Despatch No. 5, of this day's date, upon your Excellency's orders in regards to Mr. Leeds, so far as they concerned the conduct of that magistrate.

2. Before any notice of it was taken by your Government, your predecessor had directed the attention of the Government of the North West Provinces to the case. Under the Indian Law, the High Court possesses the power of their own motion of calling up and re-hearing criminal causes disposed of by the subordinate Courts, and, if need be, of revising their sentences. Having regard to this power, the Government of the North West passed on the inquiry of your predecessor to the High Court, and received from them a reply, stating that "the sentence, though perhaps lighter than the High Court would have been "disposed to inflict under the circumstances, did not appear to be specially open

"to objection." In reference to this reply, your Excellency observes, "the "Governor General in Council cannot but regret that the High Court should "have considered that its duties and responsibilities in this matter were "adequately fulfilled by the expression of such an opinion."

3. The High Court conceived that in this passage of your Secretary's letter, as well as in the censure passed upon Mr. Leeds, your Excellency had exceeded your province, and dealt with matters which were not within your competence. The Court, in expressing this opinion, further requested that, in case you should feel yourself unable to accede to their view, the points raised by them should be referred for my consideration and orders.

4. I have carefully considered in Council the matters so referred to me, and have now to make the following observations upon them. The judges of the High Court, in discussing the action of the Executive Government, rely partly upon the language of the Act and Letters Patent by which the High Court has been established, partly upon the independence of the Executive, which, according to the general intention of English legislation, is accorded to Courts of Justice. The Chief Justice, in a separate Minute, holds similar, though stronger language.

5. The material question raised is, whether your Excellency, in the measures you have taken, has exceeded the province which, either by law or by practice, has been assigned to the Executive Government. In considering this point, it is material to bear in mind that some of the functions exercised by the High Courts in India are, according to the practice of this country, strictly executive functions. The supervision of the subordinate Courts, so far as any means exist of exercising it at all, is here confided to officers who form a portion of the Executive Government, and, in respect to the tenure of their office, possess no judicial independence. Unpaid magistrates who misconduct themselves are reproved, or, if need be, removed by the Lord Chancellor. In the case of stipendiary magistrates, a similar duty devolves upon the Home Secretary. The review of the decisions of subordinate tribunals belongs, of course, to superior Courts; but the action by which they are submitted to the consideration of a superior Court, so far as it is exercised by any public authority at all, is initiated by the Attorney General or at the instance of an Executive Department.

6. In this case, therefore, it appears to me that the question of the relations between the Judicial and Executive authorities is not in reality raised. In censuring Mr. Leeds, and in expressing your regret that the authority responsible for doing so did not bring his proceedings under judicial review, your Excellency was dealing with purely executive functions, which it is your special province to control. The fact that these functions are, by an exceptional arrangement, partially committed to the High Court does not, in my judgment, alter their executive character, or withdraw them from the superintendence of the Executive Government.

7. The peculiar character of the duties, however, in respect to which your opinion was expressed, has escaped the notice of the judges of the High Court, and they have conceived themselves bound to raise the much wider question whether, and how far, the mode in which their judicial duties is performed is a proper subject for the animadversion of the Government of India. The question is not in my view raised by these papers. It is, therefore, now, and I trust will long remain, purely speculative. If, therefore, the judges had not distinctly requested my opinion on the point, I should have preferred to reserve the consideration of it till the necessity for a decision practically arose.

8. The question the judges of the High Court have, however, formally submitted for my decision, is whether "they are subject to the executive authority "of your Excellency in Council, further than is declared by the Letters Patent, "and whether it is in the province of your Excellency in Council, in a published "Resolution, to approve or condemn the action of the Court in any matter "which falls clearly within the functions committed to that Court." The Chief Justice, in the Minute appended by him to the letter of the High Court, lays down in support of this view, "that the Indian High Courts enjoy the indepen-"dent authority and prestige of the English Courts."

9. It

9. It seems to me that in this contention the vital difference between the tenure of English and Indian judges is overlooked. Until the Act of Settlement all English judges held their office, as Indian judges do now, during Her Majesty's pleasure. When Parliament desired to assure their independence and to withdraw them from the authority of the Executive, it enacted that their Commissions should be made "during good behaviour." But when Parliament set up the existing High Courts of India in the year 1861, it did not think fit to adopt towards them the same policy which had been adopted and maintained towards the Courts in England. On the contrary, it was specially enacted that the judges in all the Courts established under the Act of 1861 should "hold "their offices during Her Majesty's pleasure."

10. It appears to Her Majesty's Government impossible to treat this difference, deliberately established between the Indian and the English Courts, as accidental and inoperative. In withholding from the Indian judges the independence of the Executive, which had been on a solemn occasion formally conferred upon the English judges, Parliament must be taken to have fully intended the consequences of the important distinction which it was sanctioning.

11. The right to dismiss any person holding an office carries necessarily with it a right to indicate the conduct which may, if persisted in, incur dismissal. In other words, it involves the right to approve or condemn the action of the officer who is so liable to be dismissed.

12. I gather from some phrases used by the Court, and in his Minute by the Chief Justice, that a distinction is drawn in their minds between the powers vested in Her Majesty, and those vested in your Excellency. This distinction may be sustained when applied to any act of a formal character. A judge might obviously decline to accept his dismissal from your Excellency alone, and might ask to be assured that Her Majesty's pleasure had been taken; but in any case it could be only through you that such an intimation could be conveyed. The expression of approval or disapproval on Her Majesty's behalf to Her servants who hold office at Her pleasure, is one of the most important functions with which you are charged. You fulfil it in conformity with your instructions and subject to your responsibility to the Crown. But it does not appear to me that any person holding Her Majesty's Commission can claim to be informed of Her pleasure in any more direct or authoritative way than by a communication from the Viceroy.

13. This appears to me to be in strict right the relation subsisting between your Government and the judges in India. But it is not necessary for me to state to you that, as a matter of policy, any executive action trenching on the independence of judges in the exercise of their purely judicial functions, could only be justified by reasons of extreme necessity. Your Excellency is as deeply impressed as Her Majesty's Government with the importance of maintaining intact that confidence in the impartiality of the law Courts which any interference of the Executive, except under pressure of such reasons, would destroy.

I have, &c.
(signed) *Salisbury.*

EAST INDIA (MR. FULLER AND MR. LEEDS).

COPIES of all CORRESPONDENCE relating to the Case of Mr. *Fuller* and the Case of Mr. *Leeds*; and, of the OPINIONS and DISSENTS of any of the Members of the Indian Council.

(*Mr. Lowe.*)

Ordered, by The House of Commons, *to be Printed*,
24 *April* 1877.

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EAST INDIA (PRISON DISCIPLINE).

RETURN to an Address of the Honourable The House of Commons, dated 26 February 1877;—*for*,

"COPY of the REPORT to Marquis of *Salisbury* by Miss *Mary Carpenter* on PRISON DISCIPLINE, and on FEMALE EDUCATION in *India*."

India Office,
24 April 1877.

GEORGE HAMILTON,
Under Secretary of State.

ON PRISON DISCIPLINE IN INDIA.

To the Right Honourable the Marquis of *Salisbury*, Her Majesty's Secretary of State for India.

My Lord,

HAVING been requested by your Lordship to lay before you in writing the views on prison discipline in India which have been matured during my fourth and last tour, I beg respectfully to offer to you the following.

When I first went to India in September 1866, my object was solely to show friendly sympathy with the native inhabitants of that country, and to co-operate with them, if desired, in the improvement of female education.

On my arrival in Bombay, however, I received an official letter from the Secretary to the Government, dated 26 September 1866, containing an order from his Excellency the Governor in Council (then the Right honourable Sir Bartle Frere) to the Inspector General of Prisons, and gentlemen in charge of various institutions, to afford me every facility for studying them, with a view to my afterwards conferring with the Government on the subject and communicating the results of European inquiry and discussion.

Your Lordship is aware that I had from the very commencement taken an active part in the reformatory movement, that I had devoted careful study to the principles of prison discipline, and had recently published a work on the subject, entitled "Our Convicts;" I felt, therefore, that I could not refuse so cordial an invitation.

After visiting various prisons and other institutions in the Bombay Presidency, I addressed a memorandum to that Government containing my views on prison discipline, reformatories, lunatic asylums, Government schools, and female education. I learnt, however, from the Governor and from the heads of the educational and prison departments, that none of the principles I deemed important could be carried out except under the sanction of the Governor General of India. I therefore decided on proceeding to Calcutta. Having found my views confirmed by my visits to other presidencies, and by conferring with experienced and influential gentlemen in charge of various institutions, I laid the following statements before the Right honourable Sir John Lawrence, the Governor General of India in Council:—

REFORMATORY SCHOOLS AND CERTIFIED INDUSTRIAL SCHOOLS.

Schools of these two kinds have now been established for many years in England, and the success with which they are attended is generally acknowledged.

They are founded on the principle that gaols are not adapted to youthful criminals, who ought rather to receive moral and industrial training.

There appears a very great need of the establishment of similar schools in India; reformatory schools for older and hardened offenders who have been in prison, industrial schools for younger children and juvenile vagrants who are likely to fall into crime.

Many of both these classes may be found in the prisons of India, or are wandering over the country. They are certain to perpetuate a criminal class, unless timely steps are taken to reclaim them. Many of these boys have been several times in prison, and are already desperate characters, contaminating all who come within their sphere.

The reformatory and industrial schools in England are established by private benevolence, and are supported by payments made by the Treasury to the managers, towards the maintenance of each offender, payments from county rates by special agreement, and voluntary contributions. A Consolidated Act for each class of schools was passed last Session.

It is probable that India would require a somewhat different system for local reasons, and that here the initiative must be taken by the Government. At the same time it is probable that if encouragement were given by the Government, by the passing of a law authorising and partly providing for such schools, municipalities may be able to take their share of the needful expenditure and management. A general feeling appears to prevail among both European and native gentlemen who are in any way connected with the criminal classes, as to the importance of such establishments in India. They need not, for many reasons, be nearly as costly in India as in England, and it is probable that the labour of the boys may be made nearly to cover the expense of their maintenance.

I would therefore respectfully but strongly urge on the Legislature the importance of taking steps as soon as possible to establish such schools.

Will you permit me to forward herewith my "Suggestions on the Management of Reformatories and Certified Industrial Schools," which contain an account of the system generally adopted in England.

Central Gaols or Convict Prisons.

The erection of these for long-sentenced prisoners will be a very important measure, and will not only remove a great difficulty which now exists in the management of the common gaols, but will also afford an opportunity of carrying out the admirable system of convict treatment which proved so successful in Ireland under the management of Sir Walter Crofton. The principles of this system are now being universally accepted by distinguished persons in every part of the world who have studied the subject, as well as by the Royal Commission on Prison Discipline in 1863. For a full statement of those principles, and of their practical application, I beg to refer to the second volume of my work entitled —"Our Convicts."

India appears in many ways to present peculiar facilities for carrying out this system, and the remarkable results of the industrial system developed in Alipore Gaol, prove that it might be done at comparatively little expense. The success with which the license system is carried out in Poona by the acting superintendent proves that, under careful management, prisoners trained under a good system may be easily absorbed into society as self supporting and honest members of it. In the erection of the central gaols, therefore (convict prisons; as they are termed in England), it appears particularly important that regard should be had to adapting them to develope this system. It is especially necessary that there should be *separate sleeping cells for all the prisoners*, except for those who have arrived at the third or intermediate stages, which is the final preparation for discharge.

Common Gaols.

In all the gaols I visited great attention appeared to be paid to the industrial work, which in many cases was admirably carried on; the prisoners were thus being prepared to procure an honest livelihood for themselves on their discharge, and considerable proceeds were realised towards their expenses. A salutary influence appeared to be exercised over the prisoners, who in general were working with diligence and goodwill under proper superintendence.

The good effects which might be anticipated from this system were however greatly diminished by the *want of separate cells*. It is evident that when for 12 hours out of 24, men are locked up in cells without light, sometimes three or four together, sometimes even from 40 to 50, nothing but the worst results can be expected. It is quite impossible that even common order or propriety can be preserved. Immoral communication must neutralise any good influence which the prisoners may have received during the day. The greatest contamination must be the result of such an arrangement, and at the same time the deterrent effect of punishment is much lost, as solitude is greatly dreaded by this class of prisoners. Not only are the moral effects of the existing system very injurious, but also the physical. The various prison reports frequently speak of a dreadful mortality decimating the gaols, or even carrying off one-fourth of the whole number of prisoners. This must be chiefly due to the sleeping arrangements, which bring persons of poor or even of bad constitutions into injurious proximity with each other. Overcrowding the gaols appears to be the usual cause of any great mortality, as in other respects sanitary arrangements are carefully attended to in other gaols I visited.

The construction of separate sleeping cells in all the gaols would of course involve considerable expense, but this would be in most cases greatly lessened by employing the labour of the prisoners. In many of the gaols which I visited a sufficient number of cells could be erected without any other cost but that of material. Still, whatever may be the outlay

outlay needed, it is evident that it should not be any impediment in the way of doing what is so important both for the moral and the physical welfare of the prisoners.

The want of any arrangements for securing instruction to the prisoners is also a great evil. It is now an acknowledged principle in the treatment of prisoners that every means practicable should be afforded them of leaving the gaol better members of society than when they entered it; instruction is evidently a most important means of securing this, especially in the case of these prisoners. We cannot give them religious instruction, but we can give them that teaching and that moral influence which may enable them both to know and to do their duty. In no gaols that I visited was there any place provided for instruction, nor was there any schoolmaster on the staff. The gaol regulations did not make any provisions for these, or for any time when instruction could be given to the prisoners. The teaching given in Alipore Gaol cannot be regarded as an exception, because this is not universal, and is chiefly with a view to enable the prisoners to do such work as requires a knowledge of reading and writing.

I would beg respectfully to suggest that regular instruction should be made an essential part of the prison discipline of every gaol. To effect this the hours of labour need not be shortened, as three hours could advantageously be deducted from those spent in sleep; a proper school-room and apparatus would be required to be provided for, and especially a suitable number of teachers.

The removal of the long-sentenced prisoners from the common gaols, which is, I am informed, under contemplation, will doubtless facilitate the adoption of both of these changes, and in many ways be a considerable advantage.

Female Prisoners.

In all the gaols which I have visited, except in Calcutta, the females prisoners occupied a portion of the ordinary gaol. This was usually the worst portion of the place, and there was no provision for separation either by night or by day. They were under the care of male warders. The work provided for them was of a nature not to improve them, and no instruction was given them. No lady visitors ever go near them; indeed I was informed in one case that the habits of the prisoners are so filthy that it would be impossible for ladies to approach them and sit down among them.

It may easily be imagined what is the result of this. Not only is it impossible for any improvement to take place, but the women become deteriorated. In one gaol I was informed that the good dietary and the freedom from strict discipline so completely removed all dread of imprisonment that the women repeatedly returned after discharge.

It is evident that this is an enormous evil.

I would beg respectfully to urge,

First.—That all the female prisoners should be in separate cells, unless working under suitable supervision.

Secondly.—That female warders *only* should have charge of the prisoners. It is probable that the chief of these at least must be a European, to secure proper discipline.

Thirdly.—That the work should be of a kind to fit the women to earn their livelihood on their discharge.

Fourthly.—That regular instruction should be provided for them.

Fifthly.—That European ladies should be invited to visit them, as in England, with a view to impart to them a kind and good influence.

Calcutta, January 1867.

On my return to England the subject of prison discipline in India engaged the attention of the Social Science Association, whose council sent an important deputation on the subject to the Secretary for India, the Right Hon. Sir Stafford Northcote, laying before him the points mentioned in the foregoing paper.

My experience had been limited to the South of India, but Major (now Major General) Hutchinson, Inspector General of Police in the Punjab, being then in England, fully confirmed from his own experience the great evils which arose in the Indian gaols from the want of separate sleeping cells, and from other defects of principle.

The subject of the Indian gaols was at various times brought before the public through the Social Science Association, and a deputation from that body which waited on the late lamented Lord Mayo before he started for India, led to the hope that some great improvement would be made. Lord Napier and Ettrick, the Governor of the Madras Presidency, had much lowered the high death rate in this presidency by the attention he had given to improve the gaols. But no progress had been made in introducing the system of separate sleeping cells,

which is the one essential condition of all improvement in gaols. The principle of its importance had not been accepted in India.

The subject of Reformatory schools had been seriously considered by many official gentlemen in India; among them I may mention Lord Napier and Ettrick, Dr. Dallas, Inspector General of Gaols in the Punjab, Dr. Brake, Inspector General of Gaols in the Central Provinces. These gentlemen earnestly desired to establish reformatories for boys on the English system adapted to India, but the want of the necessary legislation prevented efforts from being made, and in the case of Nagpore caused the discontinuance of a very promising reformatory intstitution which was commenced soon after my visit there in 1870.

On the last subject, progress had been already made by the Government of India before I started on my fourth tour. The draft of a Bill had been already prepared and circulated for consideration by experienced persons. It was admirably adapted to carry out the object, and embodied the general principles of our Reformatory and Certified Industrial Schools Act of 1866. This has since become Act V. of 1876.

My object in this visit to India was particularly to study the kind of cells which bore the tests of experience as adapted to the wants of that country, to ascertain the proximate cost of erection of these, to gather the opinions of official gentlemen on the practicability and value of the system, also to converse with them on the possibility of giving some intellectual and moral instruction to the prisoners. I desired also to see the condition of the female prisoners, which was extremely unsatisfactory on my first visit, when they were under the care of male warders, in complete association day and night, and without any instruction or skilled industry.

Though it would be premature to attempt to promote the establishment of reformatories, yet I was desirous of taking any opportunities that might occur of diffusing a knowledge of the principles which the English experience of 20 years has proved to be sound.

My tour on the present occasion extended from Hyderabad and Kurrachee in Sind, to Dacca in East Bengal. I visited Bombay, Ahmedabad, Surat and Baroda, and Tanna, Poona, Madras and Calcutta, and Serampore. I was unable to go on to the Punjab, but visited Allahabad and Benares, and wherever I went I made it a special object to visit the prison in company of the superintendent. Everywhere I received kind attention and the expression of full sympathy with my views.

It would be unnecessary for me to trouble your Lordship with a detailed account of each visit; I will confine myself to the results of my observations, referring only to individual cases as illustrations.

I. *Reformatories.*—I regretted to find that the real nature of these institutions was little understood in India. A portion of a gaol separated from the part occupied by adults and appropriated to boys, who received some schooling was named a reformatory! Such I saw at Poona! In the Presidency Gaol, Calcutta, 50 young boys were thus associated together; of these many were mere children, who had been several times in gaol, and were graduating to become qualified for the juvenile criminal department of the gaol; in this I saw 150 young men, who, in their turn, were aspiring to enter the adult department. All the official gentlemen whom I saw there deeply deplored this state of things, which it was simply impossible for them to alter in gaols constructed as at present. Thus a criminal class is being created and considerably increased in India. In the Madras Gaol great improvements had been made since my first visit, and the juvenile department was as good as it could be under the circumstances, but not of course a fit place to train up young boys to get their living in society. I saw there a boy of 10 years of age, *in irons* and *a life convict*. This poor lad had unfortunately been among a number of sailors guilty of mutiny and murder.

The certain contamination attending the sending young boys to gaols prevents magistrates in many parts from sentencing them, consequently very few are generally to be found in prisons, though it is well known that there are numbers who would be greatly benefited by training in reformatories on the English system. These might be carried on in India at far less cost than in our country. No large expensive buildings would be required; in fact, they would be very undesirable,

undesirable, as the boys should be accustomed to live as much as possible like their countrymen. The clothing would be merely a cotton garment in most parts of the country, and the boys would very soon be able to raise from the land as much as would suffice for their own maintenance. Though some time will probably elapse before these institutions are general, yet I hope that a few which may serve as models will ere long be established. The Lieutenant Governor of Bengal, Sir Richard Temple, expressed his intention to establish a true reformatory on a piece of land near Calcutta as soon as arrangements could be made. At Madras, Mr. Sabhapathi Iyah had communicated to his Excellency the Governor his willingness to present a piece of land 40 acres in extent for the purpose of a reformatory, and a native chief offered to build a house on it. Native gentlemen in many parts expressed a willingness to co-operate. In Bombay the Sassoon Reformatory for boys has been in existence for more than 20 years, and it is believed to have done much good. I am not aware whether the managing committee propose bringing it under the operations of the Act. With increased powers and the knowledge which can be acquired only by experience, it may be made a valuable institution.

II. *Female Prisoners.*—Very great improvement had taken place in the arrangements for these since my first visit. In 1870 I visited Nagpore Gaol, where the women were receiving daily instruction from a native female teacher, who had been trained in the Madras Girls' Mission School. They were also taught skilled needlework and beautiful crotchet. On my present visit I found everywhere, except in the Serampore Gaol, a regular female warder in charge of the women. These were generally East Indians, in some cases the wife of the gaoler, or a native woman who had happened to have special training. Skilled work was generally given to the prisoners, though rarely instruction. Occasionally there was regular discipline carried out, as in the Allahabad Central Gaol, where the female department was quite separated from the male prison, and under the care of an experienced female official. In the female department of Benares Gaol there were well-arranged *separate sleeping cells* for the female prisoners, in which they could without any hardship remain by day, if their conduct rendered such separation desirable. The matron found this of immense advantage in enabling her to exercise an influence over the prisoners; they had daily an hour of regular instruction. This was, however, the only instance of the kind I saw, and it proved how much might be done to ameliorate the condition even of these unhappy women if there were premises constructed on sound principles and officials suited to their work. I regret, however, to say that in many cases the sleeping wards of the female prisoners were most unsuitable, and the women in charge unequal to their work.

III. *The General Question of Separate Sleeping Cells.*—Separate sleeping cells are absolutely essential to any true prison discipline. I need not attempt to prove this, for your Lordship is aware that not only has the principle of separation at night been long adopted in our own country, but that it is universally accepted as necessary on the Continent and in the United States. It was, however, at one time supposed that the circumstances of the different climate of India, and the nature of the inhabitants, rendered separation at night undesirable, if not impossible. Such objections appear to have entirely died away; for on my present visit I never heard any but the same opinion from all the official gentlemen with whom I conversed, that the present system of association in sleeping barracks, where often 60 prisoners are locked up together for 12 hours every night under the supervision only of convict warders, gives rise to frightful crimes, creates and continually increases a criminal class, is physically very injurious, and greatly diminishes the deterrent influence of imprisonment. Hence crime, and consequently expenditure, is much increased by this system, and great injury is done to offenders who are deprived of liberty by the State, and to the society from which they come, and to which they must return.

Granting, then, that separate sleeping cells ought to be universal in India, and that the expense attendant on commencing the system is the only obstacle to their introduction, it is to be considered what kind of cells are best adapted to India, and the necessary expense of these. The English cells are altogether unsuitable. In India we must provide for ventilation and for protection from

heat. The prisoners also are not in general violent and audacious, and do not therefore require for their control the same strength of cell as in England. I have heard it stated by a highly competent authority that it is easier to govern 1,000 Hindu prisoners than 10 English convicts. I have been told by official gentlemen in different parts of the country, that in ordinary gaols there are not more than five per cent. really bad men. This seems at first a startling assertion, but it must be remembered that many offences which are necessarily punished severely for the safety of society do not involve moral delinquency in the individual, who may be in other respects an inoffensive man. The Hindu is usually amenable to discipline when treated judiciously, and is not generally violent. At the same time he is very susceptible physically and mentally, and could not endure the absolute solitude of our gaols. Many kinds of cells which I saw would be very injurious to them. In one gaol were punishment cells of a very costly structure, large and dark, and supplied with fresh air by an expensive and complicated machine; in another they had been newly constructed with expensive masonry, but high, with so strong a draft from a top window, that it was difficult to protect the prisoners from bronchitis and pulmonary disease. In another gaol there was a dark inner and outer cell with a separate verandah, a costly but very gloomy place, so constructed that the warder could not see the prisoner without actually going to the inner cell. It is necessary then to ascertain what kind of cell combines the various requirements for fitness with a moderate cost. Poona City Gaol is probably the only one in the empire where these conditions have been satisfactorily fulfilled for so long a time, above 12 years, as to test their fitness. The gaol contains 400 male prisoners, each of whom has a separate sleeping cell. The cells are arranged in blocks of from 25 to 30, radiating from a centre, with a small court between each, the front of one block facing the back of the next. The cells are about 7 × 10 by 12. Each has a window near the top of the back wall, while the door consists of strong iron bars, thus admitting air and light. There is a verandah running along the block, so that a warder walking along can see what every prisoner is doing. The prisoners can be kept in their cells working all day without injury. Such cells need not cost more than 10*l.* each if with gaol labour. The superintendent of Hyderabad, Sind, showed me a cell adapted to the peculiar conditions of their country, which he could build at the cost of only 2*l.* There, as everywhere in India, was abundance of space, so that the gaol could be provided with separate sleeping cells at a very small expense. It is evident that so moderate an expense would soon be covered to the Government by the great diminution of the number of prisoners, which would very soon take place wherever the system is carried out.

Expense would also be saved in other ways. With the prisoners sleeping in association in large barracks, a military night guard round the prison is required for security. In the Ahmedabad Gaol, for instance, with 450 prisoners, there is a staff of 35 paid officials, and also a military guard of 42 persons. For this last the Government is paid 10,000 rupees, or 1,000*l.* per annum. Now this gaol is an old Mahomedan college, remarkably massive and secure; though in many respects very ill adapted for a gaol. The military guard and probably many of the paid officials might be dispensed with if a proper system were introduced. A well-built gaol, where each prisoner is securely locked at night in a separate cell, would not require a large expensive military guard at night, which does not prevent prisoners from escaping at times.

I believe that many of the gaols I saw could be altered at a very moderate expense, so as to provide separate sleeping cells for all the prisoners, if the principle were adopted by the Indian Government. I would instance the gaols at Ahmedabad, Surat and Tanna, which I visited and examined carefully. The central gaol of Yerrowda, near Poona, has been built since my first visit on a very large piece of land. The estimate which had been given for it was, I was informed, nine lacs of rupees; it was not finished when I saw it, and 11 lacs had been already spent. The premises covered 60 acres of land, with a circumference of a mile and a quarter. A thick and high wall surrounded the whole, and a second wall was being built round in addition, to prevent escapes. There appeared to be a great amount of unnecessary and expensive masonry in many parts. This gaol was calculated for 1,500 prisoners, with only 80 separate cells,

cells, or between five and six per cent. When therefore a batch of 70 prisoners was brought to the gaol they were obliged, if the cells were occupied, to be at once thrown into sleeping association with the others, carrying with them fresh details of crime. How unnecessary the expense of that second wall would have been if there had been separate sleeping cells is proved by the fact that, while several hundreds of prisoners are daily working outside the walls, only three prisoners escaped during the year, one of whom was returned. This gaol could even now be altered at a moderate expense, some of the sleeping barracks being converted into workshops, and others furnished with walled partitions about eight feet high, so as to produce physical separation. There was abundant space for new blocks of cells.

The Benares Central Gaol is now being built. If prison labour were employed the superintendent has calculated that thoroughly strong and well-made cells might be made at less than 20 *l.* per cell, so as for every prisoner to have a separate cell. This has not been allowed.

It appears then that the direct expense of separate sleeping cells is by no means as great as was apprehended, and that the indirect expenditure connected with the gaols would be diminished by the adoption of the system.

The cost of crime would necessarily be diminished by a system which is deterrent, and which might render prison discipline reformatory.

IV. With respect to instruction given to the prisoners, no alterations appeared to have been made since my first visit. No paid teachers are provided by the Government. In some gaols educated convicts give instruction to those who desire it. I found it a general opinion that it would be useless, and indeed impossible, to give instruction in reading and writing to the bulk of the prisoners. At the same time it was much to be regretted that no attempt should be made to impart some moral instruction to these men, which might enable them to leave the gaol somewhat better than they entered it. At Hyderabad, Sind, during the last seven years, some native gentlemen have been accustomed to give addresses to the prisoners every Sunday morning with good effect. I was present when 700 prisoners, Mahommedans and Hindus, ranged sitting in the court-yard, received such an address with apparent interest. A similar plan has been adopted at Rutnagiri with success. I have learnt at Ahmedabad some native gentlemen have obtained leave to address the prisoners in a similar manner. It appears then that there would be no practical difficulty in engaging the services of respectable native schoolmasters who might teach the prisoners daily for two hours, deducted from the 12 hours of sleep, and give oral instruction to those who could not learn to read.

It would be unnecessary for me to trouble your Lordship with remarks on the other points of gaol discipline, these two being in my opinion the most important ones, involving fundamental principles which have long been accepted in our country. I would beg only to say that there appeared to me great anxiety among officials everywhere to carry out well the appointed regulations, and that the system of skilled labour developed in the Indian gaols seemed to me of very remarkable excellence. The skilled labour taught to the prisoners at little more than the ordinary expense of supervision contributed very largely to the support of the establishment, has a civilising effect on the prisoners themselves, and prepares them for future life. This excellent development of industry was not however universal. There was not any uniform system of gratuities to the prisoners for work, or remission of sentence as a reward for good conduct. In some parts of India there was a system of convict warders, which was found to work admirably, while in other parts this was not adopted. Hence there was no general system adopted in the Empire.

Having the honour of an interview with his Excellency, the Viceroy, Lord Northbrook, I suggested to him the importance of having, as in Great Britain, certain general principles laid down for the whole Indian Empire, while details are left to local governments. By the desire of his Lordship I had subsequently an interview with the secretary to Government, Mr. Arthur Howell, who entered fully into my views on this subject. At his request I sketched out

what appeared the most important principles. I beg to submit to your Lordship a copy of this document:—

To *Arthur Howell*, Esq., Secretary to the Indian Government, &c. &c.

Sir, Allahabad, 29 January 1876.

In accordance with your request that I should lay before you the principles adopted by the British Government in all prison discipline, which, I think, should also be universal in Indian gaols, I beg to state the following:—

I. That all prisoners should sleep in separation during the whole term of their imprisonment.

II. That education should be given daily by competent native teachers, with moral instruction.

III. That a first stage in all imprisonment should be passed in separation from other prisoners day and night, with unskilled labour, penal dietary and instruction.

IV. That there should be a system of marks for conduct, labour, and education, with gratuities for extra work, enabling the prisoner by his own exertion to rise to greater privileges, and to obtain remission of sentence.

In adapting these principles to the conditions of climate and character in India, I would offer the following suggestions:—

I. The climate requires a thorough ventilation and protection from heat, and the cells must evidently be constructed on a perfectly different system from those in English prisons. The prisoners, often of weak constitution, their minds unrelieved by thoughts of anything good, and unable to derive ideas from reading, ought not to be subjected to the unbroken solitude of English prisons; which would be injurious as well as useless. The cells in the Poona City Gaol fulfil these conditions. They are built with doors of iron bars and a window near the top of the opposite wall. The dimensions are about 7 + 10 by 12 feet high, or rather less. They are in blocks of cells, radiating from a central office, of from 25 to 30 not facing each other, and each block with a running verandah. The warder walking through this can see each prisoner well, while communication between prisoners would be easily stopped. These cells can be used by day for work. Some more penal cells may be resorted to in case of infringement of rules. A curtain can be hung up at night before the door in cold weather. These cells have been used for more than 10 years with the greatest advantage, both morally and physically, in this gaol holding 400 prisoners. In the district gaols at Benares the women have similar separate cells, which are found by the matron of the greatest advantage. These cells might be built with two stories, thereby probably saving expense, space, and supervision. I have been told that they might be erected at a cost of material (with prison labour) of about 10 *l.* each. I have seen many cells in various prisons which appeared to me very injurious to the prisoners physically, and oppressively dark. Some of these were constructed at a great unnecessary expense, as the Poona Gaol cells answered perfectly well. The superintendent of Hyderabad Gaol, Sind, showed me a cell which he deemed suitable, which he could erect at a cost of materials of 2 *l.* only! Existing sleeping barracks might be altered for the advanced class of prisoners, by having a thin wall erected between the beds about eight feet high, leaving a portion of window for each division, and a passage for the warder down the middle. It may not be deemed right with regard to expense to alter all the gaols already built, but if the principle is adopted by the Supreme Government, all future gaols should be built on the separate system for night cells, and many existing gaols may be altered at a comparatively small expense. From want of a good system of building much useless expense is at present incurred. I need not enlarge on the immense importance of these separate sleeping cells. It is, I think, universally conceded that adoption of this will not only diminish the present contaminating effects of imprisonment, but be a deterrent, and eventually save cost by diminishing the number of prisoners.

II. It is particularly important to infuse some good ideas into the minds of prisoners. This should be done by oral moral instruction daily, as few will be in a position to gain by reading. Two hours at least daily should be devoted to instruction in a hall appropriated to the purpose. This should be deducted from the 12 hours now allotted to sleep.

III. It would not be desirable to keep the prisoners more than three months in separation by day. A month might be sufficient, dependent on good conduct. Short sentenced prisoners in district gaols should remain the whole time in separation.

IV. This system of marks and gratuities has been introduced in some gaols. It should be universal.

It

It would be desirable to distinctly separate *central* and *district* gaols, the long and the short time prisoners.

A general system of dietary, of salaries, &c., should be prepared by the Supreme Government, as in England, leaving a certain discretion to localities in this as well as in other details.

This is a sketch of what appears to be most essential. Kindly inform me if you wish any fuller details.

I remain, &c.
(signed) *Mary Carpenter.*

I have recently received from Mr. Howell a printed circular to convene an Indian Prison Congress at Calcutta during the next cold weather. This may prove a very valuable opportunity of arranging some general system of prison discipline for India. At the present time this would be very important, as new gaols are in course of erection. At Benares a large central gaol is being built, and the superintendent has not been allowed to carry out his scheme for separate cells. At Ahmedabad a large central gaol has been decided on, but is not built, and doubtless there are many other cases of the same kind. It is of course to be desired that all new gaols, and all old ones requiring extensive alterations, should be put on a sound principle. The time is therefore most opportune to hold a Prison Congress in Calcutta. Your Lordship is fully aware that the principles of prison discipline which I have here stated have at different periods been discussed in Parliament, and were closely scrutinised by the Prison Commission of 1863. These now are the foundations adopted by the British Government in its penal system. The Prison Congress which assembled in London from all parts of the world in 1872 endorsed the same principles. These are being promulgated in the United States in Congresses held annually for the purpose in different cities. The London Congress appointed a Standing Committee of Delegates from the different states of Europe, in all of which the separation of the prisoners at night throughout their sentence, and the entire separation during at least a part of their confinement, is accepted as an essential, while their ultimate reformation as the surest means of minimising crime, is the object aimed at by all. The Congress will meet at Stockholm next summer, that the members may compare the results of five years of earnest work.

India does indeed greatly differ from England in the climate and in the condition of its inhabitants, but probably not more than other countries of the world differ from each other. But the same general principles of prison discipline are found to be true in all. I trust that the coming Congress at Calcutta will establish their acceptance in India.

Having commenced this report with a statement which I made during my first visit in 1866 to his Excellency the Viceroy, then Sir John Lawrence, your Lordship will perceive that the views then formed have been entirely confirmed by the present one, 10 years later. The importance of at once adopting the system of separate sleeping cells for all the prisoners has forced itself still more strongly on my mind through the observations I made during my last visit, and the testimonies of experienced persons which I heard wherever I went.

Hoping that what I have written will receive your Lordship's kind acceptance,

I beg, &c.
(signed) *Mary Carpenter.*

Red Lodge House, Bristol,
7 September 1876.

ON FEMALE EDUCATION IN INDIA.

To the Right Honourable the Marquis of *Salisbury*, Her Majesty's Secretary of State for India.

My Lord,

In compliance with the expressed wish of your Lordship, I beg respectfully to lay before you the following statement respecting the education of the female sex, with the consequent emancipation and elevation of woman in her social position. To promote this was my chief object in visiting India.

In order to explain my objects and observations in my last and fourth journey in 1875-76 it is necessary for me to refer to my first, in 1866-67. This will be most concisely done by laying before you the report and recommendations then presented to the Governor in Council, Sir John Lawrence. It is as follows:—

The present condition of female education in India can be improved solely by the introduction of female teachers, and these can be supplied only by the establishment of Female Normal Training Schools.

The Government of India has long adopted this course to supply male teachers to boys' schools. The boys' schools are provided with good and efficient teachers, and are producing excellent results. If the same course is pursued for the girls' schools, there can be no doubt that similar results will follow after the system has had time to work. Isolated efforts have been made in some parts of Bengal to supply teachers by the establishment of Normal Schools; but these only prove the necessity of a more complete system.

Feeling assured that the Government has hitherto held back from taking this course, not through any apathy respecting female education, but from a desire to be assured that the want is actually felt by enlightened Natives, before taking any initiatory steps in the matter, I have in the Madras and Bombay Presidencies, ascertained that enlightened Native gentlemen are most anxious for the establishment of such schools, as they have testified to me in writing; in Ahmedabad and Madras steps have been already taken by them in memorialising their respective Governments. In Calcutta I have ascertained that many respectable persons are desirous of the establishment of such schools, and have memorialised Government on the subject; the want of them is very strongly felt also in many important places in the mofussil.

I am well aware that the difficulties to be encountered in establishing training schools for female teachers are much greater than those attending male normal training schools. The ignorance of Hindu women of a suitable age is one great impediment, and the difficulty of finding any such, except widows, who would be able and willing to be trained for teachers, is another. I have fully considered these and many other obstacles, and having done this, and consulted persons of considerable experience in different parts of the country, I am persuaded that they may be surmounted.

The following are suggestions which I would beg to offer as to the general features of such a school as I desire to see established. It will, of course, be clearly understood that in these proposed institutions the Government principle of non-interference in religious matters is to be strictly adhered to. While the personal religious liberty of every inmate of the institution is to be respected, no one while in it is to attempt any religious proselytism. Different localities will have different requirements and adaptation to special circumstances. It will therefore be better in every case to commence on a small scale, and with as much attention to economy as is consistent with the proper development of the institution.

Suggestions for the Establishment of a Female Normal Training School.

First.—A house should be procured, adapted to furnish a comfortable residence for about a dozen Christian students, with a lady superintendent. Arrangements should be made for the separate boarding of non-Christian Native students when required. Arrangements for necessary furniture, board and attendance to be made by the inspector of schools.

Secondly.—A lady superintendent, who should be responsible to Government for the entire management of the institution, should be obtained from England (at a salary probably of about 200 rupees a month, in addition to board and lodging); and a superior mistress for training (at about 150 rupees a month, in addition to board and lodging). In each case the passage money to be paid under certain conditions.

Thirdly.—Persons who wish to become students in training must reply to the inspector, and must satisfy him that it is their intention to study and faithfully to prepare to be teachers. They will receive board and instruction while in the institution. All English students must learn the vernacular, and all Native students English.

Fourthly.—

Fourthly.—Any girls' schools existing in the neighbourhood may be employed for the training of teachers, and the students may thus be exercising a beneficial influence in the schools now taught by men, before they are prepared to take charge of schools themselves.

I have not here entered into details, wishing not to trouble you with more than the general plan. I have, however, carefully considered everything, and shall be most happy to enter into further particulars should any be desired.

I beg to add to this a more detailed scheme, which I subsequently laid before the Right Hon. Sir Stafford Northcote, then Her Majesty's Secretary of State for India:—

To the Right Honourable Sir *Stafford Northcote*, Bart., M.P., Secretary of State for India.

Sir, Bristol, 8 October 1867.

In the letter which I had the honour of addressing while in India to his Excellency the Governor General on female education, I laid before him the actual position of the question, and gave a general outline of a scheme for the establishment of a female normal school.

I have since closely directed my attention to the subject, in order thoroughly to understand the wishes and wants of the enlightened Natives who desire such an institution, the position it would occupy in the country, the possibility of affording to the English, or other students engaged in it, such domestic comfort and protection as would be essential to them in a foreign country, the habits and manners of which widely differ from our own, and the probability of obtaining an adequate supply of students eventually to supply the general demand for female teachers.

In the consideration of these topics, I availed myself while in India of opportunities of visiting various institutions, of learning the domestic habits of Europeans in that country, and of obtaining what appeared to me reliable information from enlightened Natives in each Presidency, as well as from English gentlemen and ladies well acquainted with the country.

Since my return to England, I have had various opportunities of learning the views of experienced ladies respecting the probability of finding educated persons in this country suited for the purpose, and of discussing with them the position which will be best for them, in view of their going to India to train as teachers.

In all I have availed myself of the experience I have previously gained, both in the management of an institution myself, and in the study of other boarding institutions; I now, therefore, feel prepared to enter into the details of a female normal school, which I respectfully beg to lay before you. The plan is based on the following positions:—

1st.—Female education is now generally accepted by the enlightened part of the Native community as very desirable, and girls' schools are already established in various parts of the country, frequently by Native gentlemen themselves.

2nd.—There are no female teachers for these schools, and they are at present taught by male teachers.

3rd.—Both Native gentlemen and ladies are dissatisfied with this state of things, but cannot remedy it, female teachers not being procurable.

4th.—It would be of course preferred by them to obtain a regular supply of Native female teachers, and this should be the ultimate object to be aimed at.

5th.—But both the educational and the social condition of Hindu ladies present difficulties which at present preclude the possibility of their becoming teachers without long training, and until many existing prejudices are overcome.

6th.—This training can be given only by European or other Christian teachers who have themselves been trained, and the Natives request the help of these, if given on the Government principle of non-interference with religion.

7th.—Such trained teachers are very rarely to be met with in India, and it is necessary to bring them in the commencement from England.

8th.—These teachers will all require special training for their future work, by the acquisition of the vernacular, and the study of the wants and habits of the children in the Native schools.

9th.—The position of a teacher is not at present deemed in general honourable, or one to be desired by Native ladies; it will, therefore, be very important to the success of the work that the teachers and students should be carefully selected, that their position in the normal school should be good, and that a guarantee should be given by Government for suitable salaries to accredited female teachers in Native schools.

10th. Special provision should be made for the instruction of Native students, besides that, training in the art of teaching which they may receive in common with

the English students, so as to supply the want of previous education equal to that received in our country by pupil teachers.

Accepting these positions as the basis of the normal school contemplated, it is obvious that the special object of the institution at its commencement will be the preparation of the future teachers of Native schools; it will be desirable, therefore, to obtain, if possible, a number of educated persons who have already mastered the ordinary branches of education, but who require to learn the art of teaching, and to acquire the vernacular. Young Native ladies who may eventually become teachers, must first obtain the preparatory education either in the schools now existing, or by special classes formed for them. They should also be learning English, while the English students are studying the vernacular.

The institution should be arranged as follows:

The house provided must contain not only suitable class rooms, but comfortable accommodation for the lady superintendent, training mistress, and students (any non-Christian native students who may require to board in the institution must have separate arrangements made for them), servants, conveyance, and whatever else is needed for a respectable household, to be provided also.

The lady superintendent will have the general management of the institution, provide the board, and in every way be the head of the household. She will make all arrangements necessary for developing the objects of the institution; confer with the managers of schools desirous of obtaining the assistance of the mistress and students; conduct all correspondence, and in all respects be responsible for the due carrying out of the intentions of the Government, to which only she will be responsible.

The training mistress, who is to be an English certificated teacher, will have the entire responsibility of training the students; she will spend a portion of each day with them in the schools; give them such separate instruction as may be needed; and with them receive daily lessons of a master in the vernacular, to the acquisition of which she shall give careful attention. While teaching in any school she shall in no respect interfere with the regulations or wishes of the managers.

Persons desirous of entering the normal school as students must satisfy the lady superintendent that their character and general qualifications are such as to render them suitable for teachers, and also undergo an examination fixed by the Government. They must conform in all respects to the regulations while in the institution, and must receive a certificate of qualification from the lady superintendent, signed by the inspector, before leaving the school to take an engagement as a teacher.

Though the preparation of Hindu women as teachers should be always kept in view, and should be our ultimate object, yet to solve the problem of providing female teachers for girls' schools, it appeared necessary to avail ourselves of the help of Europeans and Eurasians; and this for the following among other reasons:

I. The difficulty of finding any number of Hindu women who would be willing to be trained as teachers. None, in fact, appeared to be available, except widows, as all Hindu girls are married very young. With respect to the widows, great difficulties existed, so that we could not hope for some time to find many.

II. The introduction of them into girls' schools to learn the art of teaching, and to acquire it by practising, would, in the existing state of schools, involve their coming into contact with the other sex, which would be against their social custom.

III. The mental condition of adult widows who might be willing to be trained would be generally such as to render it impossible that a few years' tuition should fit them to be teachers.

It appeared, therefore, that it would be preferable at first to train as teachers educated European and Eurasian young ladies to be teachers, by giving such as might present themselves a good training from English certificated teachers. No such training or normal school had been established by the Government, nor did I hear of any but one school where the attempt was even made to afford it. Many large schools for English girls exist in the country, and there are known to be already existing in the country many respectable young women in narrow circumstances who might be thankful to be prepared to get a maintenance as teacher. Many Eurasians might thus be made useful members of society. Native Christian young women who had been trained in mission schools might have been very valuable, but I learnt everywhere that to introduce

duce that element would ruin the whole scheme, so great is the prejudice in general against them, and the dread of a covert attempt to proselytise.

I soon found, however, that though I had not at all exaggerated the anxiety of Native gentlemen and ladies to obtain female teachers, yet that the existence of numerous and strong prejudices of various kinds rendered it necessary to confine our efforts at present to the giving such training as was possible to Native Hindu women only, and in such manner as appeared most feasible in each locality.

In the spring of 1868 the Indian Government made a grant to each Presidency capital for the establishment of a female normal school. I visited Bombay in the autumn, and commenced work there on the system which I had recommended. A trained English mistress attended on alternate days in two Native schools, and through the medium of an Anglo-vernacular master trained Native teachers in the English system.

My dangerous illness at the commencement of 1869 compelled my return home, and my plans for a female normal school were dropped. The Government subsequently opened a school for the education of Native ladies with a view to their becoming teachers. My plans were not carried out there.

In the autumn of 1869 I again visited Bombay. I learnt that a female normal school had been opened at Nagpore, and at the beginning of 1870 I went to that city to observe its condition. I found that a number of Native women were receiving instruction, with the object of their becoming teachers; an English mistress attended at certain hours. There was no practising school connected with this adult school, and it did not appear to me possible that these women would ever have the power of controlling a class or of really teaching. That Native women have the capability of becoming good teachers if properly trained, was proved by the excellent condition of a mission girls' school in the same city, where I saw two young Native women conducting the classes admirably, with only general superintendence from the wife of the missionary; these had been brought up from childhood in a mission school.

I also visited Ahmedabad, and found that a lady superintendent who had had some training as a teacher, and felt an interest in the work, was superintending the largest girls' school there, the masters working with her; about 10 Native women were being trained as teachers in the school itself, and receiving separate instruction, like pupil teachers. This system answered well, and gave satisfaction to the mothers, who allowed their daughters to remain longer at school on account of the presence of female teachers and a lady superintendent.

During the next five years after my return to England I kept up correspondence with English and Native gentlemen wherever this appeared to me likely to be useful; I also gave such aid as appeared to me desirable, from a small fund at my disposal, always keeping especially in view the training of teachers. During this period the following progress had been made:

At Ahmedabad the Government had established a female normal school, and a Native gentleman had erected premises for it, including a residence for the lady superintendent and a boarding-house for students.

The Bombay normal school had been discontinued after the death of the mistress, and one established at Poona under an experienced mistress, but of the progress of this I had heard nothing.

At Calcutta the girls' normal school had been given up, but a small girls' boarding-school had been established by private effort.

At Madras Government had established a normal school, which had proved successful, but the Native students having become very few, the late Governor, Lord Hobart, had permitted the introduction of Eurasian and Native Christian students, and this had worked well, though at first much opposed by Native gentlemen.

The Nagpore normal school had been discontinued on account of serious evils, and a normal school had been commenced at Jubblepore.

At Hyderabad (Sind), a lady had been appointed superintendent of several small day schools. The success of this had led the Government to establish a normal school, of which she should be superintendent. This had answered well.

In all these Government schools, students received monthly stipends of from 5 to 10 rupees, to compensate for the occupation of their time. Without such payments few students would probably be obtained.

My object in this my fourth visit to India was to study the various attempts to introduce the training of female teachers, and to gather from my observations the causes both of success and failure. Also to form some idea of the actual progress of the movement for female education, and its influence on the elevation of women. In all my work I have adhered strictly to the Government principle of non-interference with religion.

Desiring to lay my views before your Lordship in as brief a form as possible, and yet finding it necessary to enter into some detail in order to show their bearing, it appears to me best to give some account of the position of the work in each place I visited. I shall then conclude with general results, and a statement of what I deem requisite for the progress of the work.

I may first say that on my present visit, the idea of the necessity of female education appeared to me to have permeated Native society far more than it did nine years before, on occasion of my first visit. Whether or not the schools themselves were as much improved as might have been hoped, the effects of the impetus which had been given were discernible in the progress of female emancipation, and in the opening to women of fields of skilled labour; also my journey left on my mind a far higher idea of the possibility of improving the Native woman, and of her general capabilities, than I had previously formed.

At Hyderabad (Sind), female education is of very recent date, and is indeed entirely chiefly due to the zealous efforts of the late Sub-inspector, Mr. Narayen Juggunath. It was commenced by collecting a few girls round a Native woman, who had some slight education. The numbers have gradually but steadily increased, and the want is now very evident of better premises and superior teachers. The normal school has been in existence for three years, and the progress made by the students, under the circumstances, is highly encouraging. No arrangement had been made for a good practising school to be taught by the students in training, without which it is impossible for these women to become teachers. It was proposed to add this.

At Kurrachi there was a good girls' school, under male teachers. A pupil read an address to me in English. I visited the Hindu school, which was in the heart of the Native city, in a small room, into which were crowded for the occasion about 70 girls, with a Native woman as teacher. Very little instruction appeared to be given. The fact of their coming out at all was itself encouraging, as the Sindis are very backward in female emancipation, having until lately been under the influence of the Mahommedans. I had placed in the hands of the inspector 50 *l.* towards erecting a school building, and a subscription for the purpose was promised by the leading inhabitants. I have not heard of the accomplishment of this. I saw no Sindi ladies except the wives of two Brahmo brothers at Hyderabad. I was invited to meet about 30 Mahrathi ladies resident at Kurrachi. A missionary lady was the interpreter, who had been in the habit of visiting their families. The result of friendly intercourse with an English lady was very favourably evident in their deportment. A Native lady read in vernacular an admirable address to me, stating the ancient superior condition of Hindu women, their own inability to rise without help, and their desire that the English should raise them. They expressed their surprise that a lady (H.R.H. the Princess Louise of Hesse) should be President of an Association, and another lady (myself) secretary. I promised them that should I meet a Native lady of rank who took an interest in our object, I would ask her to be Vice President. The Begum of Bhopol has since accepted that office. This was a remarkable and very interesting meeting.

In Poona my great object was to study the normal school, which had been carried on for some years by Mrs. Mitchell, a lady of long experience among the Natives, and who had previously conducted the Alexandra Girls' School at Bombay for many years. This school has developed the objects intended very successfully, as far as circumstances have permitted. The building is very conveniently situated in the middle of the Native town, and not overlooking the street, so that privacy can be secured. It is not, however, sufficiently large or airy, but Mrs. M. deems it best to sacrifice this for the sake of being of easy access to the students, and to the children of the practising school. On entering, I was surprised at being warmly greeted in English by one of the young women. I asked her if she knew me. "Do I not know my benefactor?" she exclaimed.

exclaimed. "Nine years ago you came with Sir A. Grant to visit a little school which I was teaching. You encouraged me. I was so vexed at not being able to understand you that I determined that I would learn English." I learnt that she had attended the normal school at Bombay, and then came here; that she had married, but the conduct of her husband had obliged her to live separate; that she was now receiving a salary as teacher in the normal school; that her two sisters had followed her example but had declined marriage; that one was a teacher in the employ of a Native chief, and that the other was a teacher here. During my visit an English lady, governess of the Ranee of Kolapur, came to the school to obtain a Native female teacher for the girls' school at Kolapur. Beechebai, my young friend, was selected, and an arrangement was made that she shall not thus lose her position as a Government servant by teaching in a Native State. She is most anxious to go to England, and is saving every rupee she can to enable her to do so, when she is entitled to a sufficiently long furlough. I have troubled your Lordship with these details because they illustrate the gradual progress which is being steadily made. Mrs. Mitchell had assembled as many as were acceptable of the students who had already become teachers, with the children under their care—some 200. This was a gratifying spectacle, and a striking contrast to the state of female education nine years ago, when Beechebai's little school in a small room, painted over with idols, was the grain of mustard seed from which this promising work had sprung. There were about 20 students, all Native women. I heard lessons given to them, and to the practising school by their Native teachers in a superior style. An English lady was employed as an assistant, but there were no teachers in the school acquainted with the English system. At Poona I not only became acquainted with the ladies of some Native families, and received a visit from a widow lady, who has long taken active interest in female education, but, on the eve of my departure from the city, I met a large party of Native ladies, who desired thus to indicate to me their sympathy with my object. About 60 were assembled in one of the ancient palaces of that remarkable city, under the presidence of a Sirdar lady of much influence, and who expressed warm interest in my work. Mrs. Mitchell, from the normal school, attended as interpreter, accompanied by the two sisters who were working with her. These young Native ladies were not only able to translate my remarks to the ladies present, but spoke fluently in English. The meeting was a very interesting and encouraging one, and indicated great progress.

In Madras, the position of female education differs from that of other towns which I have visited, as it is chiefly conducted by missionary bodies, especially Native Christians. Many female teachers have been gradually introduced into the schools. The female normal school was originally confined to Native women, but Eurasians and Native Christians are now admitted in certain proportions, as recipients of scholarships. Miss Bain, a lady of high culture and devoted zeal, has successfully carried out the work with the help of a Native male teacher for the vernacular, and Miss Rajagopal, a very superior Native Christian lady. At the recent Government examinations, out of 18 students who presented themselves, 15 passed. The institution is in a very satisfactory state; the only great defect is that being situated in the suburbs only a small class of girls can be induced to attend. The school has been removed since my visit to a more accessible situation. There is no teacher in Madras who understands the English system. Some of the most advanced students are anxious to come to England to study it for a year.

In Madras, I found several Native ladies of position in society who are obtaining for themselves, at the desire of their husbands, an advanced, and even an English, education under an English governess. They are also allowed more liberty.

Dacca, the capital of East Bengal, though somewhat remote, is considerably in advance of other places in female education, through the efforts of many enlightened Native gentlemen. Here I found a small adult school, unique in its character, which is chiefly attended by married ladies, whose husbands desire for them intellectual improvement. Some of them learn English. Two small girls' schools are in the same building, but they suffer from the want of efficient teaching. Some of the ladies of the adult school might be induced to train as teachers if only they could have an efficient mistress. They cannot

unaided obtain one. A good training school here might soon supply the neighbourhood, as there are many Native ladies in Dacca who have made considerable advance.

Calcutta has made little, if any, apparent progress since my first visit in 1866. The schools were, I learnt, in much the same condition as before. They are chiefly missionary schools. The capacious premises of the Bethume School, which was intended to promote the education of the higher classes, and which might well contain 200 scholars, with separate class-rooms for higher education, has only about a third of that number, in age more fitted for an infant school. Every inducement is held out to them to attend; carriages are provided to convey them to and from school, and there is a superior trained mistress. A fee of 2 rupees a month (6 *d.* a week) is esteemed very high by rich gentlemen. It was attempted to carry out the normal school here, but the attempt failed. In the meantime a rapidly increasing number of the Europeanised Natives and of the Brahmos are earnestly desiring superior education for the female members of their families. I received hospitality from three of such families, who received me in English style. Miss Ackroyd's boarding-school, to which I have alluded, has been of great use. In several cases ladies entered the school whose husbands had gone to England. These, on their return, were thankful to find their wives somewhat educated and accustomed to English habits. Miss A.'s marriage and Mrs. Phear's approaching departure from India led to the discontinuance of the school, but it had done a good work, and a permanent institution of the kind has just been started by the Government.

Benares exhibited some very interesting and instructive features. This being considered a sacred city, it would consequently be a very conservative one in the matter of female education. Fortunately however, the Maharaja of Vizianagram commenced the movement soon after my first visit to India. This nobleman is deservedly celebrated for his enlightened benevolence, and spends a large proportion of his income in works of charity. At first the children were paid for attending school, and a large number came; they discontinued attendance when the payments were no longer made. His Highness then engaged an English lady of experience and energy to carry on the schools at his sole expense, which she has done now for some years. On occasion of my visit I found that she had four schools in houses of easy access to the scholars, and in secluded localities, and she had succeeded in gradually obtaining female teachers only for the scholars. These were Eurasians, Native Christians, and Hindu women. These latter were not very efficient, and there was considerable want of trained teaching in the schools, Mrs. Etherington not being able to give more than general superintendence. The simple fact, however, of no males being on the premises was of very great importance. Not only were there about 500 Brahmin children in attendance, but many widows and marriageable girls were obtaining so advanced an education, as to prepare them to gain their living by skilled industry. A remarkable proof of this came before me. The Native doctor of the hospital had a class of about 10 women from the school, chiefly widows, who were undergoing regular training and instruction for the medical profession. I was present at one of his lessons, and was much struck with the readiness and accuracy of their answers. The doctor found them quite equal to the male students in aptitude and intelligence in the preparation of their lessons. They were still in regular attendance at the school. In the same building with one of the schools is what is called a Government female normal school. This consists of a number of Native women who board on the premises, and who are taught by two Native women only. It is evident that in its present condition this can be regarded only as a second-rate adult school, not likely to produce teachers worth the expense of training. Yet, if a trained English teacher were placed in charge of the school, this might be made a peculiarly efficient central institution for the North Western Provinces. Mrs. Etherington has been appointed Government inspectress of girls' schools. Her position would thus enable her to make the normal school work with the others which are directly under her management. A certificated teacher would be thus able to introduce a good system into the Vizianagram schools, while at the same time she was training her own students in the art of teaching. All the teachers now employed in the four Vizianagram schools might thus receive themselves skilled training, and the schools would become model ones for the province, perhaps for all India. I pointed this out to the inspectress, who fully entered into my views. She would

would gladly co-operate with any plan of the kind, and was ready to give the most important help by offering her services to obtain a suitable mistress, and to arrange for her comfortable residence. I laid the subject before the Maharaja, who expressed perfect willingness to sanction such an arrangement, should the Government desire it.

At Allahabad I found that no girls' school existed which was deemed worthy of a visit, even among the missionaries. A few girls were being collected in some localities through the inducement held out of the payment of small coins.

I much regretted that various unavoidable circumstances prevented my staying at Jubblepore, where my presence had been much desired.

Passing through Bombay I proceeded to Ahmedabad. I regretted to find the girls' schools in this city—which had been exceptionally good on my first visit, and the largest of which was carrying out the work of a normal school under a lady superintendent at my third visit—were now in a very inferior condition. A new separate building had been erected for the normal school at some distance from these schools, with which it was quite unconnected. As great a desire for good teaching for girls appeared to exist in the minds of Native gentlemen, but they were quite unable to obtain it. One Native gentleman had so highly educated his little daughter, now nine years old, that she could read English fluently, and was advanced in arithmetic. She had no means, however, of proceeding farther, and he actually sent her to Bombay to board with a friend that she might attend the Roman Catholic Nunnery School for higher education. I cannot give any opinion about the prospects of the normal school, as the lady superintendent had only recently been established there, and though possessed of various qualifications and anxious to do her duty, she was not acquainted with the vernacular, or with the English system of school teaching.

At Surat two large girls' schools were under male teachers exclusively, as they were nine years before. The bulk of the children had made very little progress, evidently from the ignorance of a good system of teaching. At least half of the children were of an age to be in an infant school. These poor children have nothing to call out their minds, and I was informed by a master that they occupy a year in learning the alphabet!

At Baroda and at Tanna female education had been only recently commenced, but in each case considerable effort had been made, and an earnest desire existed for improvement.

The city of Bombay has made very great progress in femal emancipation during the last 10 years. This is not a matter of surprise when we know that 15 years before that period Native gentlemen themselves, chiefly members of the Students' Society, had inaugurated female education under immense difficulties, and had steadily persevered in their efforts, notwithstanding very great discouragements. The Parsi portion of the community are not shackled by the same social customs as the Hindus, and though the older members of their society are perhaps equally conservative, yet so many of them have visited England and travelled elsewhere, in some cases taking their families with them, that the seclusion of the ladies, which was painfully observable on my first visit, has now greatly disappeared. This was very evident at the enthusiastic public reception given to His Royal Highness the Prince of Wales on his recent visit. Judge Manockjee Cursetjee has contributed not a little to this change by his devoted efforts during more than 30 years, to improve female education in his own family first, and then by the establishment of the Alexandra school, in which the English language is the basis of the instruction given, with English teachers. This system has not, however, yet taken root among his countrymen. The large Jamsetjee Jeejebhoy schools are still taught the vernacular only, and by male teachers, in large classes of 30 or 40 or more girls. A Parsi gentleman informed me, however, that in four Parsi schools Native Female teachers are employed, several of them being young Parsi ladies brought up in the schools. Many of these might become good teachers if skilled training were obtained for them, which is not the case. The Hindus also have made considerable progress. While formerly the family of Dr. Atmaram Panduring stood almost alone, now there are many families which are allowed considerable liberty. As an instance of this, may be mentioned the fact that frequent gatherings of such ladies meet at the house of Dr. Atmaram, and the gentlemen of the families are not excluded.

I met one such party when from 30 to 40 were present. The spread of education among women of a lower class is proved by the fact that Dr. Hunter has opened two classes for the training of Native midwives. None are admitted who cannot read and write the vernacular; they undergo a scientific training, and then are practised in the hospital. Many of these women have been very successful, and obtain a good living. But while there is evidence in many ways of the spread of education, and of an increased public opinion in favour of it, the Hindu schools themselves are in no way improved; on the contrary, they seemed to me in a condition inferior to that in which they were at my first visit, when the late learned Dr. Bhaudaji and other Native gentlemen took a warm interest in the management of them. A few Native women assist in the teaching in them, but the teachers are generally very inferior, and the premises quite unsuitable. Native gentlemen feel themselves powerless to raise the schools, nor indeed can this be done unless some really good trained lady teacher is provided by the Government. I conversed with many Native gentlemen on the subject, and am satisfied that they will gladly co-operate if any help is given for the improvement of female education.

The general impression I have formed from my present visit to India on the subject of female education, is a very hopeful one. The idea of education seems increasingly to permeate the masses from high to low. Native chiefs are thinking of the education of their ladies, and a single instance in which they carry this into effect is more valuable than any mere professions of interest. Native gentlemen of position are, in many cases, anxious to obtain for their ladies instruction from English ladies. The class of women requiring to obtain a maintenance find that they can do so better by being educated. I have formed a much higher idea than before of the capabilities of Native ladies, both in acquiring knowledge and in becoming teachers. There is not the great dread of female education which formerly existed, and altogether the way appears open to rapid progress, if only the conditions necessary to this are provided. These conditions are in the first place a good teaching power, with suitable premises and appliances; these cannot be supplied by the Natives, and without them the schools for girls will continue as they have done, without any sensible improvement.

When the Government decided on establishing male education in India on the British system, educated English gentlemen and well-trained schoolmasters were obtained, who inaugurated the various schools and colleges. Native masters were trained both in these and in numerous normal schools, these again trained others. At Ahmedabad, the principal of the male normal school, Mr. Mahiputram Rufram, was sent to England many years ago, and spent some months in a good training college, where he thoroughly mastered the English system. On my first visit to India, I was surprised to find how admirably he was carrying out this among the young men who practised the art of teaching in a school connected with the institution. At present, in new premises, with which is connected a boarding-house for the students, he is admirably preparing a number of young men to go out as valuable teachers into the Mofussil schools. Many middle-aged Native gentlemen have told me how valuable was the mental and moral influence they had received from the English gentlemen at the head of the colleges and high schools where they were brought up; they in their turns have imparted this to others, if not as heads of schools, in whatever sphere of life they may be placed.

The Government has not yet adopted this course to promote the education of the female sex, a course which has been so successful with the male portion of the community. I am quite aware that until lately the Government would not have felt it right to do anything of the kind, lest they should be regarded as interfering with the social customs of the country. But that time is past. The girls are freely sent to school in many parts of the country, and my brief narrative must have proved to your Lordship that a desire is widely spread for education, and in many parts for a higher education than can possibly be obtained without help. It is so contrary to the social customs of the Hindus to have girls taught by men after a very early age, and so evidently improper in itself considered, that mothers decidedly prefer female teachers, even if these are of an inferior quality, or of another religion; and owing to the removal of the young girls at so early an age from schools taught by men, very little progress

gress can be made from generation to generation until suitable schools, taught by female teachers, are provided.

This is so very apparent that it is a matter of surprise that so little has been hitherto done in India to supply a proper teaching power to the existing girls' schools, and that no good model schools have been established by the Government. The only objections that have been made to me when urging the supply of suitable teachers have been "want of funds," and the difficulty of obtaining suitable female teachers.

Respecting the first of these objections, "want of funds," I am well aware that there is a great need of economy in India. But this felt necessity does not prevent the erection in the chief cities of magnificent and costly buildings, when plain and inexpensive ones might well have answered the purpose These I saw everywhere with wonder and admiration, newly erected since my former visit. Indeed I was strongly impressed with the opinion that money can always be forthcoming in India for objects which are really desired. There is, however, an evident apathy on this subject, as an unnecessary and extraneous one. It is forgotten how many years are wasted to the population from the want of home training and proper development of the child, consequent on the ignorance of the mothers; and that the degraded condition of one-half of the inhabitants must have a baleful influence on the other half. With respect to the other objection, the want of female teachers and the difficulty of obtaining them, this may be met by the employment of proper means, which have not yet been adopted.

There does not appear to be in India a sufficient appreciation of what is required to constitute a good female teacher. It seems to be thought sufficient for those who are to become female teachers to have acquired certain knowledge, and to be able to pass the appointed examinations. But education is a science, and an art, and ought to be studied in each of those aspects. This is understood in England; and no labour or expense is spared in the training of teachers. It is here understood that a teacher who understands the art of teaching will communicate kowledge and train the faculties of the young girl with much more facility, and in a much more agreeable way, than those who have not been thus trained. Our infant school system would be peculiarly adapted to Hindu children. This is not understood in India, nor did I hear of any school of the kind existing. The lady superintendents of the female normal schools have not been trained in the English system, and consequently cannot teach it

The first step, then, should be to have some well-trained English mistresses sent over to India. Great care would, of course, be required in the selection. If the Local Government were to establish one good school with such a mistress wherever the need existed, such a mistress would soon be able to train others as assistants in the schools. Without commencing a new school, such a mistress might superintend some existing schools, and with the help of an Anglo-vernacular master, introduce a good system into the schools, training pupil teachers at the same time. Such a teacher appointed for the four Vizianagram girls' schools at Benares, of which Mrs. Etherington is superintendent, would render a separate normal school unnecessary, as the women in training could all be trained in the school much better than separately. Such a teacher at Ahmedabad and at Surat for the girls' schools would soon bring them into a state of efficiency, as that at Ahmedabad was when under an English lady superintendent. In Bombay one trained mistress for the Hindu girls' schools, and another for the Parsi schools, co-operating with the existing Native managers, would soon establish an improved condition of female education. With a few such training institutions in the Presidency of Bombay, a system of higher education might be organised, and female teachers could be prepared, without increasing the number of female normal schools. The introduction of some trained and efficient teachers is, then, of immediate necessity; but this will not alone be sufficient.

While I quite believe in the possibility of preparing Native women to be efficient teachers, yet at present those who are fit to be so trained are isolated cases, and will not meet the rapidly increasing demand. I should then recommend that one good normal training school should be established by the Government, in which young women of education, whether English,

Eurasian, or Native Christians, should receive a good training as teachers. There are in India a large number of young women, daughters of officials, orphans, and others, who have received a fair education in English schools. At present they have rarely any opportunity of getting a livelihood, but from having been brought up in the country, and acquainted with a vernacular, they would be much better prepared than strangers to enter on the duty of teaching. At Madras we saw that Eurasians and Native Christians were admitted to the normal school with Hindus. But this was an exceptional case, and would not be desirable in general. They might all be admitted to the Government normal school, on producing satisfactory testimonials, and undergoing the appointed examinations, as is done in our own country. Such young women, being previously well trained, would save great expense by supplying all the English schools with teachers, who are now brought at great expense from England, and many would, if accomplished and ladylike, be sought for as governesses to Ranees or Native ladies of superior condition. I will not trouble your Lordship with the details of such an institution, but an experience now of 10 years increases my conviction that we ought to prepare female teachers from the material now in the country. I trust that your Lordship and the Indian Government may see fit to carry out such a plan.

One plan more I would suggest. I have mentioned the great benefit derived by Mahiputram Rufram from visiting the English training schools. He has repeatedly assured me that no descriptions could have enabled him to understand the system without personally inspecting it and working in the schools. There are now to be found some Native women who have gained such experience and culture, with a knowledge of English, as would make a year's visit to England of great value to them. I saw such at Poona and at Madras. There may be some in Bombay and Calcutta. If the Government would arrange the expense of sending over some on fixed conditions, they might derive great benefit, which they would communicate to others.

I have already informed the Directors of Public Instruction in Bombay and in Madras that I would undertake, with my friends, to superintend the arrangements for such students in England.

I need not add that provision should be made to supplement the salaries raised from municipal rates, by Government grants for efficient teachers, so as to secure for them adequate remuneration for good teaching.

Trusting that your Lordship will give this important subject full consideration, and commend it to the notice of the Indian Government,

I beg, &c.
(signed) *Mary Carpenter.*

Red Lodge House, Bristol,
30 August 1876.

EAST INDIA (PRISON DISCIPLINE).

COPY of the REPORT to Marquis of *Salisbury* by Miss *Mary Carpenter* on PRISON DISCIPLINE, and on FEMALE EDUCATION in *India*.

(*Mr. Wait.*)

Ordered, by The House of Commons, *to be Printed*,
2 *May* 1877.

185.

Under 3 *oz.*

EAST INDIA (MR. WELD).

RETURN to an Address of the Honourable The House of Commons, dated 17 May 1877;—*for*,

"COPY of CORRESPONDENCE and PAPERS relating to the Suspension, in April 1876, of Mr. *Weld*, of the Madras Civil Service, for, as Magistrate of *Negapatam*, Tanjore District, causing the EXHUMATION of a BODY of a SANIYASI buried on the Banks of Drinking Water Reservoir at that Place, and all OPINIONS or DISSENTS of the Members of the Madras Council and Indian Council, if any."

India Office,
31 May 1877.

GEORGE HAMILTON,
Under Secretary of State.

(*Mr. Percy Wyndham.*)

Ordered, by The House of Commons, *to be Printed*,
14 *June* 1877.

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Financial Department.—No. 28 of 1876.

From the Government of Madras to the Secretary of State for India.

My Lord Marquis,

WE have the honour to forward, for your Lordship's information, copy of our proceedings, marginally noted, from which it will be observed that we have deemed it necessary to remove Mr. M. R. Weld, Madras Civil Service, from his appointment of acting head assistant to the collector and magistrate of Tanjore, and to suspend him from all employment for a period of two months.

Dated 2nd September 1876, No. 1585.

We have, &c.
(signed) *Buckingham and Chandos.*
W. Robinson.
R. S. Ellis.

Ootacamund, 28th September 1876.

PROCEEDINGS of the Madras Government, Financial Department, 2nd September 1876.—No. 1585.

NEGAPATAM BURIAL CASE.

(No. 20 A.)

READ Petition from *S. Muthookishna Iyer* and others, to His Grace the Governor in Council, Fort St. George; dated Negapatam, 5th June 1876.

May it please your Most Noble Grace,

WE, the undersigned inhabitants of Negapatam, in the district of Tanjore, with due deference, beg to lay before your Most Noble Grace the following facts:—

A Native Brahmin of this town, by name Voobavoo Sastrial, aged 85 years, breathed his last on the 30th April 1876. Two months previously he had entered upon the fourth and the holiest of the orders of life amongst the Sanyasis, technically termed in the Hindu Shastras as "Paramhamsasramum." His body, which became highly consecrated, as it were, under the above circumstances, was enshrined on the northern bank of the tank called Ackaraikolum, within the municipal limits (apart from the town) of Negapatam. The deceased having been a highly educated Sastri in the Achara Prayachitta and Curmaconda portions of the Hindu Vedas and Shastras, and having been equally celebrated for his good and virtuous character, the procession to the burial ground was largely attended by multitudes of all classes of the Hindu community. The body was buried underground, 9 feet deep, in the midst of a large quantity of salt thickly poured on all sides as well as over and below. This mode of burying the dead body is dictated by the Vedantic system of Hindu Philosophy, with apparent view of avoiding percolation. The Shastras prescribe that bodies of the venerable men of the kind should be interred in places to which the public resort for bathing, making ablutions, and for meditating, and

it is no bad idea that arrangements to commemorate the names and recollections of eminent ancestors are made by giving a residence to their sacred bones near tanks, and by the side of pleasant running brooks. On the banks of the aforesaid Ackaraikolum a long usage of burying the dead bodies of Sanyasis has prevailed even after the above-mentioned tank was brought under the operation of the Municipal Act. To prove this a visitor may, even to this day, meet with small columns of bricks or monuments erected over the burials in bygone years. Over the bones of some of these the tree "Arasay" has been made to grow, and is still growing with its wide and leafy branches. Moreover, it is not a fashion obtaining in Negapatam alone, but is the orthodox usage, having force over the countries watered by the Ganges, Cauvery, Vigay, Godaveri, and other sacred rivers and tanks situated anywhere between Cape Comorin and the Himalayas. Under the highly rigid rules of Hinduism, it is only one among thousands that is admitted into the rank of Sanyasi, and it is, indeed, to a very select few of them honourable burial of the above sort is accorded by the community at large. Between the spot of interment and the highest water-limit of the tank, there are about 60 feet of ground protected by long and strong brick steps and a brick platform to guard against percolation. Moreover, there is a wall with a deep foundation between the grave and the tank. The slope of the ground on the side of the grave being also northward, there is not the slightest chance of any contagion spreading. Under the above circumstances we deeply regret to say that the joint magistrate of Negapatam, under Section 528 of the Criminal Procedure Code, by a notice issued to one of the sons of the deceased, dated 6th May, directing him to exhume the body of the deceased from the aforesaid spot to any other locality approved by the municipality within the 13th May, has enjoined that the default will not only be punished under Section 188 of the Indian Penal Code, but the body will be removed to the place known as "Hathaway's Park," where all the nightsoil and dirt of the town are deposited and situated near the Pariah-street. The reason assigned by the joint magistrate was the chance of percolation affecting the waters. The disinterment of dead bodies is considered unhallowed by Europeans, and it is also a sacrilege according to our Shastras. It is highly dangerous if executive officers, municipal or magisterial, were arbitrarily to decide questions of the above nature and disturb by coercion the established current of religious opinion.

It is our humble belief that Section 133 of Act III. of 1871, empowers municipal commissioners, whenever they deem it necessary, to close and open graveyards after issuing notice to the people and upon adopting several steps prescribed by it. A joint magistrate, in exercising his authority under Section 528 of the Criminal Procedure Code, should have regard for the reasons manifested by the Legislature in the Municipal Act. The proceedings in this case have, however, been hasty, and have wounded the feelings of the community. We, in due time, reported our grievance to the district magistrate, but that officer did not help us. The sons of the deceased, for fear of criminal prosecution, removed the dead body to a neighbouring desecrated place.

In conclusion, we, the most dutiful subjects of your Most Noble Grace, most respectfully pray that your Most Noble Grace will be pleased to give to our representations proper consideration and to issue such orders as the justice of the case requires.

(No. 943.)

Referred to the District Magistrate of Tanjore for report.

(signed) *W. Hudleston*, Chief Secretary.

Ootacamund, 20 June 1876.

(No. 20 B.)

READ also letter from *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Hon. *W. Hudleston*, Chief Secretary to Government, Fort St. George; dated 22nd July 1876.

Abstract.—Submitting the Report called for on the foregoing Petition.

(No. 20 C.)

READ also Petition from *Kistnasamy Iyer*, Head Sheristadar of North Arcot, to His Grace the Governor in Council, Fort St. George; dated Palmanair, 5th July 1876.

Your Grace,

I BEG most respectfully to lay the following few lines before your Grace for favourable consideration and orders, with the humble request that I may be pardoned for thus intruding upon your Grace's valuable moments.

2. My aged father (aged 85 years), having at the close of his days become a *Sanyasi* (monk), died at Negapatam, in the Tanjore District, on the 30th April last. His remains were solemnly buried in the most public manner and in broad daylight at the *customary* Hindu

Hindu burial-ground on the north bank of the Ackaraikolum Tank, in the limits of the town of Negapatam. Five days after, Mr. Weld, the acting joint magistrate at that station, having taken objection to the burial in question, ordered its immediate removal, and the body was accordingly exhumed and re-interred in another locality; Mr. H. S. Thomas, the magistrate of the district, to whom I appealed, having approved of and repeated the orders of the joint magistrate.

3. I have already prepared a memorial on this subject for submission to your Grace's Government, setting forth, in detail, the injustice done me in the matter. I sent it to Madras a week ago to be printed, so that your Grace may read it with ease, and I daily expect to receive it. The memorial will be submitted to your Grace very shortly.

4. Yesterday I heard from Tanjore that a mahazarnamah, addressed to your Grace by the inhabitants of Negapatam, animadverting on the proceedings of the magistracy in this matter, having been referred to the Collector and magistrate, Mr. Thomas, two or three days ago, submitted an unfavourable report to your Grace with regard to the burial in question, and commenting upon my conduct.

5. I beg most respectfully to solicit the favour of your Grace's abstaining from passing final orders on the above report until after perusal and consideration of my memorial above mentioned, which will be submitted to your Grace within a very few days.

6. For this act of kindness I shall, as in duty bound, every pray.

(No. 20 D.)

READ also Petition from *Kistnasamy Iyer*, Head Sheristadar of North Arcot, to His Grace the Governor in Council, Fort St. George; dated Palmanair, 11th July 1876.

My Lord Duke,

I BEG most respectfully to submit the following extraordinary proceedings of the joint magistrate, Mr. M. R. Weld, and of Mr. H. S. Thomas, district magistrate of Tanjore, for your Grace's special consideration and orders. In doing so, I shall not intrude upon your Grace's valuable moments with lengthy arguments and criticisms, but confine myself to a concise statement of the whole facts of the case, with but few remarks thereon.

2. I am a native of Negapatam in the Tanjore District. I have a house there, and the whole of my family live in and about that place. I myself held various appointments under Government in that town and in the Tanjore District up to the end of 1870, when, on the recommendation of Mr. G. Lee-Morris, late Collector of Tanjore, I was sent for to this district by the Collector, Mr. Whiteside, as first-class Tahsildar of the Wallajah Taluq, and after three years' service in that appointment, I was promoted to the post of huzur head sheristadar, which office I now hold.

3. In the month of April last, my father died at Negapatam, aged 85 years. He was a Sanskrit pundit, and was universally respected for his wisdom and the purity of his life. He was famous for his extensive knowledge of the Hindu *Vedas* and *Shastras*. He was revered by the whole of the Hindu community of Negapatam, and I may say of the whole district. In his last days he expressed a desire to become a *sanyasi* (monk or saint) according to the principles of the Hindu religion, and agreeably to his wishes, the necessary preliminary ceremonies of atonement were performed, and he, in the month of February last, became a *sanyasi*. He breathed his last at about midday on the 30th April last.

4. According to the Hindu *Shastras*, the remains of *sanyasis* are *buried* instead of being burnt in the usual manner. The burial must invariably take place on the borders of tanks or rivers, or under the shadow of *Aswatha* (*Ficus religiosa*) trees, and generally at places set apart for the performance of religious ceremonies, or for the resort of religious people. Over the graves of *sanyasis*, *pagodahs* or *brindavanums* (equivalent to tombs) are constructed, or *Aswatha* trees, are planted in memory of the deceased; and flower gardens are also laid out at the spot planted with *Tulasi* (*Ocymum sanctum*) plants. For ten days after death, daily ceremonies and afterwards occasional ceremonies or *pujahs* are performed at the grave in honour of the deceased *sanyasi*, as prescribed by the rules of Hinduism.

5. At Negapatam there is a large fresh-water tank, or pond, called *Ackaraikolum*, in which almost the whole of the inhabitants of the town bathe, and the water of which is used for drinking and other purposes. It is situated in the limits of the Puttur village, adjoining Negapatam; but a few years ago the tank was included within the municipal boundaries. The northern, eastern, and western sides, or banks of the above tanks, are from time immemorial used as the burial ground of Hindu *sanyasis* of all castes who die at Negapatam, different portions of the banks being appropriated by different castes of the community. There are distinctive marks, such as masonry buildings and earthen platforms, to show that burials have taken place there. Even after the said tank was included

* Sent separately.

within the municipal limits, there have been several burials on the tank bund. The accompanying plan* will give an idea of the situation of the different burial grounds, &c., on the banks of this tank.

6. About the place where the *Brahmins* bathe on the northern bank of the tank, the remains of *Brahmins sanyasis* used to be interred from time immemorial, but the last such burial took place about 30 years ago, as during the above period no *Brahmin sanyasi* died at Negapatam, except in one single instance, about 15 years ago, when the body was, for the convenience of the deceased relations, buried on the bund of a pond called *Kakka-kolum*, situated in the heart of the town, and much more frequented by the public than the *Ackaraikolam* above referred to. The bund of the *Ackaraikolum* tank, however, is the ancient and customary public place of burial of the *Hindu sanyasis*.

7. It may here be mentioned that the above locality, where the bodies of *Brahmin sanyasis* are buried, is also used by a large section of the Brahmin community of Negapatam for the performance of religious obsequies of deceased Brahmins, whether saniyasis or otherwise. At the above spot there is an Aswatha tree, with idols thereunder, which is worshipped by Brahmins on certain occasions. Further, it would appear, the Brahmins have of late, and long before my father's demise, under a license obtained from the municipal commissioners, inclosed this piece of ground with a compound wall, to make the place more adapted for the above purposes. I must, however, here mention that, as I have many relations at Negapatam, the person who so applied to the municipal commissioners on behalf of the Brahmin community, happens to be a relation of mine, and that my brother, like others, contributed towards the cost of constructing the said wall.

8. On the day of my father's death and burial, I was not present at Negapatam. It would appear that immediately after death the body was carried from my house to the above burial ground, in broad daylight, and in grand religious procession, accompanied by upwards of 2,000 inhabitants of the town, consisting of all classes of people, such as Brahmins, Chetties, Sudras, both males and females, old and young. At about 4 p.m. the interment took place in the most solemn manner, the ceremonies being performed at a large expense.

9. On receiving intelligence of my father's demise, I left Chittoor and arrived at Negapatam on the 3rd May last, on the fourth day after the obsequies commenced. On the following morning as I was going to the grave with the whole of my family and friends to perform the ceremonies of the fifth day, we heard to our great surprise that the Joint Magistrate, Mr. Weld, and the Municipal Vice President, Mr. Oliver, were at the burial ground making inquiries about the burial. My brother, Sashappien, who was village magistrate of Negapatam, but not of the locality where the burial ground is situated, at once appeared before the joint magistrate, and, strange to say, that officer by a verbal order immediately suspended my brother from his office, and directed the summary removal of the body of my father from the grave where it had been buried four days before. In the very next breath, Mr. Weld said that he dismissed my brother, and gave a week's time for the removal of the corpse. My brother, in vain, explained to that gentleman that the interment had taken place in the customary place of burial, and begged of him to inspect other tombs, &c., only a few yards from the spot and round the pond, and to make inquiries as to the customary right of the Hindus to use the place as a burial ground. He further pointed out that the order should not be passed so summarily in an important matter of this kind, and urged that he had committed no offence of any kind in his official capacity to deserve dismissal from his appointment in the service of Government. The joint magistrate, however, refused to listen to his prayers. My Lord, no words can express the confusion and dismay into which the whole of my family was thrown at the moment in consequence of the above arbitrary preceedings of the joint magistrate.

10. On making inquiries as to the cause of the magistrate's interference in the matter, I learnt that Mr. Oliver, the Vice President of the Municipality, had induced him to take this action. I at once went to Mr. Oliver in company with two of the Native Municipal Commissioners, Mr. Swayambu Iyer and Sreeramulu Naidu, and we all impressed upon him the religious and solemn nature of the burial in question, and the disgrace and ill-fame the removal of the body would bring upon my family and the Hindu community at large. I also pointed out to him that the interment took place in an ancient and customary public burial ground. Mr. Oliver, admitting to me that he took the initiative in the matter, said that he was not aware of the importance of such burials, nor that the place was a customary burial ground, adding that, if he had been previously informed, he would not have taken any steps, and he would see Mr. Weld that evening, and, as vice-president of the municipality, waive all objections to the burial, which I believe he subsequently did.

11. I then hastened to Mr. Weld and stated the whole of my case to him. He said he would refer the matter to the Collector and magistrate, and I had better go and see him on the subject. I begged of him to inquire into the point, whether the place was a customary burial ground or not. But he would not comply with this request of mine.

12. On the 5th May I proceeded to the headquarters of the Collector and magistrate and

and saw Mr. Thomas, who had then on his table the joint magistrate's letter to him on the subject. I related to him all the circumstances of my case, especially calling his attention to the fact of the locality in question being the ancient and customary place of Hindu Sanyasi burials, and to the excessive shame and annoyance that I and the whole of my family would be subjected to by an order to disturb the body once solemnly and peacefully buried with all the ceremonies prescribed by my religion. The alleged necessity for the removal of the body being said to be the ultimate supposed injury to the water of the tank by the percolation of the decomposed matter of the body, and the consequent danger to the health and life of those who may drink the water, I expressed my willingness to adopt, at my own cost, any remedial measures which might be prescribed to prevent any possible future injury to the water of the tank. Mr. Thomas considered my proposition for awhile, and then suggested to me that a good quantity of lime thrown round the body in the grave might answer the purpose. I then informed him that no less than 240 seers of salt had been packed round the body in the grave, and that I was prepared to carry out his suggestions at any cost. He, however, said that the doctors must be consulted on the point. I requested him to make the suggestion to the doctor at Negapatam, or to any other doctor. He told me I had better myself go and inform the Vice President, Mr. Oliver, and the Joint Magistrate, Mr. Weld, of his suggestion. I begged of him to be pleased to write and tell those officers of the arrangement that he thought might be made in the matter. He then told me to take leave and go back to Negapatam, and began to write the letter. I left him. A few minutes after, however, he sent for me again, and told me that he would not allow me the indulgence of adopting the remedial measure above referred to, but commanded that *within that evening* I should remove the body from the grave. It was then past 3 p.m., and I was at Vallum, at a distance of about seven miles from the Tanjore Railway Station, where the train was due just about that time. I represented to the magistrate that it was impossible for me to carry out his orders, as I could not by any possibility catch the train or otherwise be at Negapatam before the evening. He then ordered me in very severe and stringent terms to remove the body within the following day, and warned me that, if I disobeyed his orders, he would see that I suffered the heaviest penalties of the criminal law. I lastly solicited him, at least, to inquire whether the place in question was not an ancient burial-ground, as alleged by me, and then dispose of the case on its merits, and not to proceed so summarily in a matter of such grave importance to me. He then observed that I was impertinent, and threatened that he would report me to my Collector. I finally left him in great sorrow.

13. I returned to Negapatam, and engaged two lawyers to appear before the joint magistrate and apply for a formal inquiry into the matter, and to file a statement of my objections (copy of which forms Appendix A to this Memorial). The joint magistrate received the petition, but made no inquiry. On the contrary, he caused to be served upon my brother, who was at that time present in his cutcherry, a magisterial notice (translation of which forms Appendix B, and true copy of it Appendix C.) to remove the body within a week. With this order in his hand, my brother returned home. My Lord, I here beg to request your Grace will be pleased to consider for a moment the extreme state of mortification and sorrow into which I and all my relatives and friends were thrown at this time.

14. On the night of the same day (6th May) which was the seventh day of the obsequies, a deputation of the townspeople came to me to say that they were prepared to proceed to the Neilgherry Hills, and there see your Grace on the subject. After a careful deliberation of the matter, and considering my position under Government, I came, however, to the conclusion that I had better not take any such proceedings against the orders of the local European magistracy, whatever might be the amount of injury that I might thereby sustain; and with great difficulty I induced them to desist from their proposition.

15. Having no other alternative, I then resolved to remove the body at once in obedience to the magisterial notice, notwithstanding the disgrace and expense attendant thereon. I purchased out of my own pocket a piece of ground in the neighbourhood of the tank, which was pronounced to be unobjectionable by Mr. Oliver, the vice-president. On the night of the 7th May last I had the body removed, with no small amount of trouble, to the new place, where, at a considerable cost, all the ceremonies, once already performed at the original grave, from the day of death up to that day, had to be repeated, in addition to certain other ceremonies of atonement on account of the removal of the body. My Lord, whenever I think of what transpired at Negapatam in connection with my father's burial, I cannot but call to mind with indignation the arbitrary proceedings of Messrs. Weld and Thomas.

16. This, unfortunately, is not all. My brother has since been formally dismissed from his office of village munsif and puttamonigar of Negapatam, on the alleged ground that, as village magistrate, he ought not to have interred the body at the spot. My Lord, first of all, my brother was not the village officer of the locality where the burial took place, and, as such, he had no local jurisdiction of any kind there; and he simply did what every ordinary man would do under the circumstances, he interred the remains of his father at the usual and customary burial-ground. This is the sin my brother is said to have committed, and which, in the eyes of Mr. Weld and Mr. Thomas, is so heinous as to deserve summary removal from the service of Government. I pray that your Grace will be pleased to consider for a moment if there is any shadow of official connection on his

part with the burial in question. Again, the tahsildar of Negapatam, Venkatrayulu Naidu, who has served Government honourably and with credit for many years, and who has been decorated, moreover, with a valuable jewel, as a special mark of the favour of Government on one occasion, has actually been compelled by Mr. Thomas to send in his resignation and apply for pension, because he is alleged to have assisted in the so-called objectionable burial; whereas he went to the spot merely in his private capacity to honour the occasion, and show respect to the memory of my late father, of whom he was a friend.

17. I beg to summarise below the several important points for your Grace's benign and favourable consideration:

I. The locality where the burial in question took place is an ancient and customary burial-ground. There are many old residents of Negapatam who can prove this fact; there are also masonry and other marks on the ground to prove it. The joint magistrate, Mr. Weld, would not inquire into this matter, although I earnestly begged him to do so. Why he would not is a mystery to me. This point deserves your Grace's serious notice.

II. As an old burial-ground, if it was objectionable to allow further burials to take place there, the proper course, I need hardly point out, should have been for the municipal commissioners to close it, under Section 134 of the Towns Improvement Act III. of 1871, and to provide a new burial-ground, as required by Section 135 of the same Act. They have done neither. As similar burials have taken place within the last few years, or subsequent to the inclusion of the tank in question within the municipal limits, it may be fairly assumed that these burials had the tacit consent and sanction of the commissioners. At present there exists no burial-ground in the large town of Negapatam where the bodies of deceased Brahmin and other Sanyasis can be publicly and unobjectionably buried. I request your Grace to consider whether it was in any way just or legal, under the above circumstances, to order the removal of the body once interred in the customary burial-ground. Moreover, the course adopted by the joint and district magistrates of Tanjore in the above case is in direct opposition to the spirit of the standing orders of Government with regard to ancient burial-grounds (*vide* Board's Standing Order, No. 31, Dalyell's Edition).

III. Mr. Oliver, the vice-president of the municipality, who was indirectly the cause of all this trouble to me, apparently abstained from taking proceedings in the case under the Municipal Act, knowing full well that he must eventually fail, and that the Hindu community would establish their ancient right to bury at the spot. While so, the joint magistrate, Mr. Weld, hastily concluding that the burial in question was objectionable on sanitary grounds, took upon himself the responsibility of summarily ordering the removal of the body in an illegal manner, in the absence of any complaint from the townspeople or of the municipal commissioners, and this in spite of our earnest and reasonable protests.

IV. Even supposing that the burial in question was objectionable on sanitary grounds, could no remedial measure have been devised, which, as I assured Mr. Thomas, I would gladly carry out, no matter at what cost, instead of having recourse to the extreme measure of hastily and summarily ordering the removal of the body once properly buried? Throughout the whole country (Tanjore not excepted) Hindu and Mahomedan burials daily take place on the banks of tanks and ponds. What arrangements have been made to stop all these burials, or to exhume and remove the bodies recently interred? Why, I would ask, should my case be treated with such exceptional severity and hardship? The body of my father was not, your Grace will perceive, carelessly buried; the large quantity of 240 seers of salt was laid under and placed all round and over it in a deep grave, so as to preserve the body from decomposition. Between the place of burial in question and the water in the tank there are solid flights of masonry steps, platforms, and walls with foundations, as will be observed from the accompanying plan. There was, therefore, really no fear of danger being occasioned to human health or life by contamination of the water of the tank, so as to justify the extreme measures adopted by the magistracy in this case. Ordinary people cannot comprehend the theory of decomposed matter from the body ever penetrating this masonry and coming in contact with the water of the tank. To none of the 2,000 inhabitants of the town who were present on the occasion did it occur that the burial in question was objectionable on sanitary grounds. It did not so occur to the experienced tahsildar and magistrate, Venkatrayulu Naidu, who has been found fault with and punished so severely for being present on the occasion, as stated above. How could it then occur to my brother, who is a man only of ordinary ability, and just then in deep grief at the loss of his beloved father, that the burial was so extremely objectionable, especially as the locality was always used for burials of the kind? That there was no secrecy about the burial in question will be clear from what has been stated above as to the place, time, and manner in which it took place, and yet not a single soul in the whole town took objection to the burial, either at that time or subsequently. People continued to bathe in the tank, and to drink its water, as usual, from the moment after the burial took place.

18. Thus

18. Thus your Grace will observe that the disinterment of the body in question was quite unnecessary, and that the magistrate has acted in a most indiscreet manner, with entire disregard to the feelings of the Hindu community at large, and which is also altogether opposed to the ordinary principles of justice. The arbitrary procedure adopted by Mr. Weld is not less remarkable than the order for removal. First, there was a verbal order of suspension of my brother from his office; in the next breath, a verbal dismissal; the next moment, a verbal order to remove the body at once. When I sent two lawyers to put in a statement of my objections, no inquiry whatever is held, and no redress is given me; but a written notice is served upon my brother, under what law or section of the Code of Criminal Procedure I am not informed. Whether this omission was not intentional, so as to give me no opportunity to question the order which the magistrate saw I was protesting against, I leave it to your Grace to decide. The notice, if justifiable at all, ought to have been under Section 521 of the C. P. C. I was, under the provisions of the code, entitled to the verdict of a jury or punchayet, to be constituted by the joint nomination of myself and the magistrate as to the injurious nature of the act complained of, and whether the body ought or ought not to be removed from the spot. I beg to ask, why should I be denied this right, which the law gives to every one of Her Majesty's subjects in this country? Was it because I am the head sheristadar of an important district, and my brother a village munsif, or because the Negapatam taluq magistrate happened to attend, as a friend, the funeral of my father? Not satisfied with the order for removal, not content with his arbitrary procedure, the joint magistrate, Mr. Weld, was pleased and thought it proper to treat the sacred remains of my father, a venerable Hindu Sanyasi, with contempt and insult, as evidenced by his notice (Appendixes B and C), which enjoins that if, in accordance therewith, the body be not removed, not only would my brother be prosecuted under Section 188 of the Indian Penal Code, but also he (Mr. Weld) would cause the body to be removed on behalf of Government, and have it reinterred in what he calls "Hathaway's Park." The so-called park is notoriously the place set apart by the municipal commissioners in the south-west of Negapatam for the deposit of the nightsoil and rubbish of the town, and where, I believe, dogs are buried! At all events, it is not a new burial-ground provided by the municipal commissioners under Section 135 of the Towns Improvement Act, or an existing burial-ground where decent human burials could take place. Surely Mr. Weld could hardly expect me to understand that that place of filth was henceforward to form the future burial-ground for Hindu Sanyasis. That cannot be. The use of the words "Hathaway's Park," therefore, in the notice in question, was clearly to insult and annoy me and my family. I would earnestly ask your Grace what necessity was there for the magistrate to use this most improper and wholly uncalled-for expression in his notice? Mr. Weld should, I submit, be required to answer this question to your Grace's satisfaction.

19. In conclusion, if the magistracy were acting under the *bonâ fide* belief that the removal of the body was absolutely necessary for the protection of public health, be it so. But it is the manner in which we were treated, the hasty and inconsiderate mode in which the order was given, the illegal and irregular procedure throughout adopted by the magistracy, the utter disregard of the sacred nature of the burial, the insulting and contemptuous treatment of the remains of the deceased Sanyasi, the high-handed manner in which the rights of a large section of the Hindu community have been trifled with—it is such conduct on the part of the joint and district magistrates that it is my chief object to bring to your Grace's serious consideration. In my particular case the mischief has been done, and the odium incurred. Nothing, therefore, now remains for me to do but respectfully to lay these extraordinary and unprecedented circumstances before your Grace, for such consideration and orders as your Grace may deem just and proper, after calling for the records of the case, and the correspondence that passed between the joint and district magistrates on the subject, in which, I believe, my timely remonstrances and prayers must have found place.

20. Finally, Mr. Thomas has, for some unknown reason, not as yet written to my Collector, as he threatened he would, against my supposed misconduct in the matter in question. I wish he had done so; for in that case Mr. Whiteside, my official superior, would have been in a position to express freely his official opinion on the case.

APPENDIX (A.)

STATEMENT of Objections filed before the Joint Magistrate of Tanjore.

THE place where our father's remains have at present been interred is a locality which from time immemorial has been appropriated for the interment of *Brahmin Sanyasis* and others. There is no other place in the municipality set apart for the same, nor has the municipality or magistracy ever expressed their disapprobation thereof by closing the ground or otherwise. No more than about three years ago there have been interments there of a similar nature, which have been tacitly allowed.

2. The way in which the body has been interred is such as not to cause any harm to the sanitation of the public, because as much as 10 cullums of salt have been carefully thrown round the body, so as to eat up any impurities that it may cause.

3. The interment of the body is one of a strictly religious nature. The deceased was a Sanyasi, and a venerable old Brahmin, of nearly 85 years; and such a halo of sanctity envelopes his tomb in the eyes of the public, that should we be compelled to disturb it, it will be a grave sacrilege in the public opinion, not to speak of the extreme pain to our feelings it will cause. This opinion of the public may lead to grave social harm to ourselves, which may even go the length of our excommunication from our caste.

We therefore beg that the honourable Court, whatever it may think it judicious to order about matters of this sort in future, will be pleased to let this interment undisturbed in consideration of the foregoing circumstances.

(True Copy.)

(signed) *Kistnasamy Iyer.*

APPENDIX (B.)

TRANSLATION of the Joint Magistrate's Notice.

MR. M. R. WELD, Acting Joint Magistrate of Tanjore in charge, hereby orders Sashappien, Village Munsif of Negapatam, that is to say:—

Whereas you have buried the corpse of your deceased father on the bund of the Ackaraikolum Tank, attached to Negapatam, which contains fresh water, which is chiefly drunk by all the people; and whereas the water that will ooze out of the body so buried will go and fall into the water of the said tank, situated close by, and thereby it is likely to cause nuisance and disease to the people who drink the above water; you should, within the night of Saturday the 13th instant, take out and remove the said your father's corpse. If you do not within that time take it away, not only will prosecution be taken against you, under Section 188 of the Indian Penal Code, the body will be removed on behalf of Government, and buried in the place called Hathaway's Park, or it will be dealt with in any other manner which may be convenient.

(signed) *M. R. Weld,*
Negapatam, 6th May 1876. Acting Joint Magistrate.

(True Translation.)

(signed) *Kistnasamy Iyer.*

(No. 20 E.)

READ also letter from *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Hon. *W. Hudleston*, Chief Secretary to Government, Fort St. George, dated 25th July 1876, No. 2815.

ABSTRACT.—Submitting copy of an explanatian from the head assistant magistrate regarding his order for the removal of the body of the deceased Brahmin from its place of interment.

(No. 20 F.)

READ also letter from *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Hon. *W. Hudleston*, Chief Secretary to Government, Fort St. George, dated 15th August 1876.

ABSTRACT.—Submitting report and all connected papers in the case of the burial and exhumation of the body of the Sanyasi at Negapatam.

(No. 20 G.)

ORDER THEREON, 2nd September 1876, No. 1585.

THE Governor in Council has perused these papers with the utmost regret. It is clear that the place of interment was and had been a customary burial-place for Brahmin and Sudra Sanyasis, and that no steps had been taken by any authority to prohibit such burials, or to prohibit the use of the place as a place of burial, under the powers of the municipal

municipal or any other law. There can be no doubt also that any danger of contamination by impurity from decomposition of one body buried at a distance of 15 or 20 yards from the water, with a thick wall and a large flight of steps intervening, might have been entirely prevented without the removal of the corpse from the grave.

2. Under such circumstances the joint magistrate, hastily and without investigation of the circumstances, proposed to put in force the utmost powers of the law; and without taking warning from the doubt suggested by the letter of the Acting Collector, issued an order purporting to be under the statute, but in which he incorporated a threat entirely unjustified by the statute, and which was an insult to the feelings of the family, and of the entire Brahmin and Hindu community, as well as an outrage to decency.

3. Mr. Weld has shown himself to be, at present at least, entirely wanting in the qualifications essential to the due exercise of judicial or magisterial functions. He will accordingly be removed from his appointment as acting head assistant in Tanjore, and suspended from all employment for two months; and it is further ordered that the exercise of all magisterial functions be withheld from him, until powers are again expressly conferred by order of Government.

4. The Governor in Council has also to consider the action of the Acting Collector in this matter, and while the Government is able with satisfaction to recognise Mr. Thomas's strenuous efforts for improved administration in Tanjore, and to allow due weight to the fact that cholera had for long raged in Negapatam, and spread thence with most fatal effect over the length and breadth of the Presidency, and that he was ignorant of the crowning offence offered to the people concerned by his subordinate, they cannot disguise from themselves the fact that he omitted to institute close examination in a most delicate case, where he admittedly entertained doubt, and that his action failed to secure reasonable consideration for those who claimed and were entitled to claim from him protection from the acts of his subordinate, and a due regard for the religious customs of the community. They regret also to have to condemn the tone of his comments on the facts of the case. But they are willing to credit him with an exaggerated idea of the imperative necessity for supporting the action of his subordinate in a town which had been stricken with disease of a malignant type, and in a line of action which he thought could be held to be within the letter of the law. This feeling appears, unfortunately, to have led him to forget that the very large discretion granted by the statute imposes a corresponding increased responsibility upon those who enforce it, and thus an unnecessary, harsh, and unfeeling procedure was allowed against those whom it was his especial duty to protect from anything like oppression or wrong. His continued severity, however, in sanctioning the steps taken with regard to the municipal officers, when he was aware that the case was under appeal to Government, appears not only to have been harsh in itself, but unjustifiable and ill-judged in the extreme, and the Governor in Council regrets to be obliged to record his marked condemnation of it.

5. The Governor in Council directs that Seshappier, the son of the deceased, be at once restored to the post of village magistrate, from which he was dismissed, and that the family be informed of the extreme regret with which Government have learnt the distress to which they have been subjected, and of the desire of Government to relieve them from all expense connected with the provision of the second burial-place and the ceremonies on the reinterment. The Collector will endeavour to ascertain the amount from them, and will at once reimburse it, reporting his proceedings for confirmation.

6. The municipal commissioners will no doubt act in regard to their dismissed servants in accordance with the spirit of this decision.

7. The case of the tahsildar appears to depend on some distinct considerations. The Government, however, desire that this present matter may in no respect prejudice its disposal.

8. In conclusion, his Grace the Governor in Council desires to record his marked approval of the course adopted by the family of the deceased and their fellow-townspeople in the circumstances which arose after the funeral. The temper and moderation of their representations under extreme provocation, and their entire abstinence from any violent acts or language, under circumstances which were calculated to excite the warmest feelings of grief and anger, are entitled to the highest commendation.

(True Extract.)

W. Hudleston, Chief Secretary.

To the District Magistrate of Tanjore.
„ the Board of Revenue, through the Revenue Department.
Extract from paragraph 3 to the Accountant General.

TELEGRAM from the Secretary of State for India to the Governor of Madras, 4 November 1876.

YOUR Financial Despatch, 28, forwards petitions against Mr. Weld, but no explanations from him or Mr. Thomas. Please send them at once.

Financial Department.—No. 36 of 1876.

From the Government of Madras to the Secretary of State for India.

My Lord Marquis,

REFERRING to your telegram of the 4th instant, we have the honour to forward herewith, the explanations of Mr. Thomas and Mr. Weld in the late Negapatam burial case.

2. We forward also an abstract of the vernacular record in the case, with copy of the English portion.

We have, &c.
(signed) *Buckingham and Chandos.*
Neville Chamberlain.
W. Robinson.
R. S. Ellis.

Fort St. George, 15 November 1876.

P.S.—Since this Despatch was drafted we have received from the magistrate of Tanjore a further letter of explanation in the case which we shall in due course forward to your Lordship, with our proceedings thereon.

PROCEEDINGS of the Madras Government, Financial Department, 2nd September 1876.—No. 1585.

NEGAPATAM BURIAL CASE, No. 20-B.

READ the following letter from *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Chief Secretary to Government, dated Agastiyampalli, 22nd July 1876:—

I HAVE the honour to submit the report required by the endorsement, No. 943, dated 20th June 1876.

2. The enclosed petition* is somewhat numerously signed certainly, but there are more than enough of idle or ignorant people who will sign almost anything but a bond, and I am quite sure that 50 times as many signatures could readily be procured to the very opposite of this petition, and that it does not really represent the feeling of the town of Negapatam.

* Not yet received back from the Head Assistant Collector. A reminder has been sent him.

3. Nevertheless I will review the points of the petition on their merits.

4. The burial of Saniyasis in the neighbourhood of frequented watering places was once as much a practice of the Hindu church as the burning of widows, the offerings to Jagganat, hook-swinging, fire-walking, and such like. But at the present date such burials are not, in my opinion, more defensible than the other practices aforesaid, nor more desired by the people even, though Government has declared against the other practices, but not been called upon, that I am aware of, to express an opinion on such burials. This petition claims, however, that they are in accordance with "the established current of religious opinion," which it is said to be "highly dangerous" for executive officers to disturb. It seems necessary, therefore, that Government should now pronounce on such burials.

5. If the joint magistrate had permitted the burial to remain unchallenged, and I too had countenanced his permission in the face of a petition which I had to the contrary, and

and the natural result had followed, that by percolation the main drinking supply of the sown of Negapatam had been poisoned, and a goodly proportion of the hundreds, nay, thoutands, that resort there daily, had died or suffered, I do not see how we could have justified ourselves in the eyes even of the people committed to our care, still less before the Government we represent and serve.

6. So much for the general claim to poison drinking-water by such burials. I turn now to the special claim that there is a right to bury Saniyasis in the particular place in point.

The joint magistrate's report on this point is clear, and runs as follows:—

> "Even if the place where the Saniyasi has been buried were clearly shown to be a burial-ground, and even to be private property, it would be no reason for not issuing an order to remove the nuisance. Nuisances created by factories, &c., are, as a rule, on private property, but a man may not use even his private property to the detriment of the public health.
>
> "There is, however, nothing to support the contention that the place is a burial-ground, except the vague assertion that someone was buried near the place some 30 years ago, and that a Sudra Saniyasi was buried on another part of the tank bank three or four years ago; but if the authorities were careless then it is no reason they should be so again; the fact that burials have been made round the tank at long intervals of time does not constitute the tank banks a burial-ground. It is entered in the Peimash as a Brahman's bathing-place."

7. That the son who performed the burial well knew that there was no right to bury Saniyasis there is clearly shown by his action in the matter. He procured from the municipality the liberty to inclose the spot, not for the purpose of burying, but for making a bathing-place. The real object having thus been concealed, the grave too was stealthily dug under cover of the surrounding walls, and the gate furthermore was locked. I think it is clearly inferable that he well knew that if his intention had been foreseen by the municipality it would in the interests of sanitation have been prevented, and therefore he thought to gain his end by stealth.

8. In stealth also he would have failed had he not been himself the village magistrate, and had not the tahsildar been a man who was taking his pension in a month and without any further care for the good opinion of his superiors. The tahsildar accompanied the procession, and the police consequently suspected no necessity for their intervention. They saw indeed a burial procession which of course was public, but as the taluq magistrate was present they could not think the interment was about to be made in an objectionable locality, and it was this last intention that had been kept secret.

9. The use of salt in such burials is, I understand, to prevent mundane effluvia detracting during interment from the sense of sanctity attached to the body of the holy deceased. But its action can in a moist soil be only temporary, and both from subsequent personal observation, and from the report of the joint magistrate, it was obviously inevitable that the decomposed body must very shortly percolate into the tank, for it was in a purely sandy soil with no other drainage. This view is further supported by a medical opinion taken at the time and now enclosed.

10. The real hardship in the case was the exhuming. It caused me *much* pain to witness the distress of a younger son when appealed to, to prevent it. But it would have caused me more to have seen the death of hundreds accruing from my own weakness in yielding to my feelings, rather than being governed by my reason and sense of duty. I doubt not the joint magistrate went through a like conflict of personal feeling.

11. That he was as sympathetic as he could be in the discharge of his duty is indicated. by the length of time he allowed for the reburial, time which would be ample for all religious ceremonial, and even for a personal visit to Madras to obtain from Government a cancelment of the order. The length to which he carried his consideration was only justified by the presence of salt, and the fact of the deceased being emaciated. Had low-caste hands performed the exhuming, at once there might have been room for complaint of disregard of caste scruples. As it was, it was left for the friends and fellow-castemen of the deceased to make their own arrangement, and the alternative of disobedience was of course the removal of the body by others, and none but pariahs would be at the disposal of the magistrate, so that there was no real threat conveyed in the explaining of this alternative; it was only a clear warning to the parties that the difficulty could not be met by a mere money fine, that the source of probable disease and death *must* be removed somehow, and therefore that it had best be done by the relatives.

12. If any seeming hardship still remained, it must be remembered that the buriers of the deceased brought it on themselves by the stealthy way in which they deliberately set at naught the authorities, and the health and lives of the community, to say nothing of their feeling of distaste to bathing in and drinking of water contaminated by the drainage from a decomposed human body. In short, he deliberately placed the authorities in a forced position, from which there was no escape, except by exhuming. He had therefore to reap what he sowed.

13. About the legality of the order under the peculiar circumstances of the case, I entertain no doubts, and I examined this question to the best of my ability. A copy of the order is enclosed. It was at the verbal instance of the vice president of the municipality that the joint magistrate moved.

14. The parade in the petition about removal to a desecrated place is hollow. It was simply a question of expense for extra religious ceremonial to sanctify the new spot, and that spot was a private spot of their own selection.

15. One of the sons who carried out this stealthy burial, in defiance of sanitation, of authority, and of public feeling, is a man who ought to have known better. He is Krishnasami Iyer, the head sheristadar of the Collector of North Arcot, and presumedly not ignorant of the sanitation questions of the day. In the heat of his distress I pitied him, and did not report him to his Collector, but now that the matter is deliberately revived, and the right to such burials is seriously contended for, I venture to submit for consideration whether he might not in some way be given to understand that the Government view his conduct with displeasure. Police, municipal and other subordinates in this district who failed in their duty, have been severally dealt with.

Under Section 519, Criminal Procedure Code.

To *Seshappayan*, Village Munsif of Negapatam.

WHEREAS you have buried the body of your deceased father on the Akkaraikolom Tank Bank, which contains good water, useful to the public at large for drinking purposes, and whereas the impurities of the body by percolating through and polluting the water, will cause injury and sickness to those using the water, I do hereby direct and require you to remove the said body of your father before the night of Saturday the 13th instant. If you do not remove it within that time, you will not only be prosecuted under Section 188, Indian Penal Code, but also the body will be removed by the Government, and buried in the place called "Hathaway's Park," or will be disposed of in whatsoever manner it will be most convenient to do.

(signed) *M. R. Weld*,
Acting Joint Magistrate.

Negapatam, 6 May 1876.

(True Translation.)

(signed) *H. S. Thomas*,
District Magistrate.

From Surgeon *L. Beech*, Acting Zillah Surgeon, Negapatam, to the Sub-Collector of Tanjore, dated 7th May 1876, No. 90.

WITH reference to our conversation of the 5th instant, I have the honour to inform you that I visited the Akkaraikolum in company with Mr. Oliver, the vice president of the municipal commission, and it is my opinion that, notwithstanding there being a flight of steps which are between the tank and the grave of the deceased, organic and other decomposing matters must obtain entrance into the tank in question from the body of the Brahman, who was buried within 15 or 20 yards of the edge of the tank, and from the nature of the soil, which is sandy, the percolation would be carried on under the most favourable conditions imaginable.

(No. 20-C.)

READ also the following Letter from *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Chief Secretary to Government, dated Point Calimere, 25th July 1876, No. 2815.

IN continuation of my letter, No. 2764, dated 22nd July 1876, I have the honour to forward the enclosed, this day received from the head assistant magistrate, and to return the Government petition.

From *M. R. Weld*, Esq., Acting Head Assistant Collector of Tanjore, to the Collector of Tanjore, dated 21st July 1876, No. 185.

WITH reference to your letter of the 14th July 1876, No. 2693, I have the honour to inform you, that I stated in the order, that if the body of the Saniyasi was not removed by the relatives, it would probably be buried in Hathaway's Park, because the vice president of the municipality on being asked by me where the body could be buried, replied that there was no other waste ground at his disposal, and that if we were obliged to remove the body, that was the only place in which we could put it.

2. I was, as you have observed yourself, very sorry for the sons, and suffered a great conflict of feeling when resisting their entreaties, and when Pleaders Saminda Iyer (late Government Pleader), and Amasami Iyer, old acquaintances of mine, came to speak about it, I consulted them as to the cemeteries, and times at which they should be observed, and settled the time specified in the order in accordance with what they told me. I am sure that they will bear me out when I say that I did all I could to render the matter as little hurtful to the feelings of the family as was consistant with insisting on the removal of the body.

(No. 20-D.)

READ also the following Letter from *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Chief Secretary to Government, dated 15th August 1876, No. 3051.

I HAVE the honour, as directed, to submit all the papers* in the case of the burial and reburial of the Saniyasi at Negapatam.

* To be returned as per enclosed list.

2. To make them readily intelligible, I should explain that, immediately on the receipt of the Government endorsement, I sent it into the office for the preparation of a report, but not liking the office draft I drew up a report myself. This was on 28th June 1876, so that allowing for the postage to my camp it will be seen there was no manner of delay on my part.

3. I had then no knowledge that Hathaway's Park had been specified in the acting joint magistrate's notice, but hearing that it had been, I stayed my draft and wrote to the joint magistrate for a copy of his notice, and, finding that it was so, I wrote again wishing to know the reason for Hathaway's Park having been selected, and this was before Government asked that same question. Before I could get the reply I received stringent telegrams from Government, which impelled me to send them at once my draft, incomplete as it was, and to tell them what it was that I was waiting for to complete it. This then must be the explanation of the necessary incompleteness of my report as far as it touched on the Hathaway Park question. If I had not received such stringent and repeated telegrams, I should have had time to wait the last reply and recast my draft in the parts which refer to the Hathaway Park question. All the rest wanted no recasting.

4. On that question Mr. Weld's explanation† is now inclosed in his own words.

† In the original to be returned. No. 34 in the List.

5. On the questions which concern the municipality the answer‡ of the vice president is also inclosed in his own words, for it is a correct answer and full in all respects but one, which is, that Brahmans do not bury, they burn their dead. Saniyasis, be they Brahmans or Sudras, are buried. Lingayats and a few other Hindus also bury, and it seems that Hindu children are buried ; but the point has not arisen at all in the present case. If any number of burial grounds had been provided the Saniyasi burial now in question would still have been surreptitiously conducted in order that he might have been placed in that very spot as one of public resort, and one therefore in which the fame of the dead would have been prominent, albeit to the injury of the living.

‡ In the original to be returned. No. 36 in the List.

6. It will please be borne in mind, however, that municipal questions have no proper pertinence to the action of the joint magistrate and myself in this matter. We had before us a body actually buried in close proximity to the main source of a drinking water of a large town. The question was not what ought or ought not to have been done by the municipality to prevent it, but what was now to be done by the magistracy to remove the evil of the existing fact; to remove the imminent danger to the health and lives of the community.

7. With reference to the remark, "Rule in Negapatam seems to be much disorganised," it may suffice to say that I imply no blame either to Mr. Weld or the vice president.

8. With reference to the tahsildar, I may mention that that too is a history of itself, which is now separately before the Revenue Board.

9. With reference to the sub-magistrate I have made a thorough personal inquiry, and have thought best not to transfer him elsewhere even on equal pay.

10. The police also are not, in my view, to blame.

11. In the submission of this report there has been one day's delay. It has resulted from the innumerable interruptions on a return to headquarters. I am very sorry for it; but I could not possibly help it.

From *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Joint Magistrate of Tanjore, dated Vallam, 16th August 1876, No. 3065.

AMONG the several papers transmitted by you in connection with the burial of Ubbasastri, I found copies of some not attested by you. As I cannot attest them for you, and as there will necessarily be a further delay in returning them for your signature, I have submitted them to Government as received. Please see that no such omissions occur in future.

LIST of PAPERS submitted to Government with District Magistrate's Letter, dated 15th August 1876, No. 3051.

	From and to Whom.	Date and Number.	Subject.	Remarks.
1	From Joint Magistrate to District Magistrate.	160; 4 May 1876 -	Asking instructions as to whether an injunction may be issued to remove the body of a Brahman, under Section 519, Criminal Procedure Code.	
2	From District Magistrate to Joint Magistrate.	1724; 5 May 1876 -	Giving certain instructions with reference to the above, and calling for explanation from the officers concerned.	
3	From Joint Magistrate to Tahsildar and Magistrate of Negapatam.	55; 5 May 1876 -	Asking him to explain why he did not prevent the burial.	Copy.
4	Petition from Sadagopa Ayengar to Collector and Magistrate.	5 May 1876 - -	Complaining against the burial of Ubbasastri.	
	Endorsement thereon - -	19 May 1876 - -	Petition rejected for want of stamp.	
5	Petition from some inhabitants of Negapatam to District Magistrate.	6 May 1876 - -	Requesting that the burial may not be interfered with.	
	Order thereon - - -	6 May 1876 - -	Expressing his opinion that it was incumbent on the Joint Magistrate to cause the speedy removal of the cause of danger.	
6	Notice from Joint Magistrate Seshappien, Village Magistrate.	6 May 1876 - -	Informing that if the body is not removed before the 13th, he will be dealt with under Section 188, Indian Penal Code, and the body remoued to Hathaway's Park.	Translation. Already sent up to Government with Letter, No. 2764, dated 22 July 1876. Copy.
7	Statement of objections from the sons of the deceased to the Joint Magistrate (by Va-	6 May 1876 - -	Objection to the removal of the body.	(Enclosure 1, Vakalat)
	Joint Magistrate's endorsement thereon.	6 May 1876 - -	Rejecting the above.	
8	From Joint Magistrate to the Vice President, Negapatam Municipality.	162; 6 May 1876 -	Informing that if the body be not removed by the sons it may be removed by the municipal servants to Hathaway's Park, or otherwise disposed of.	Copy.

List of Papers submitted to Government with District Magistrate's Letter, dated 15 August 1876, No. 3051—*continued*

	From and to Whom.	Date and Number.	Subject.	Remarks.
9	From Joint Magistrate to the Inspector of Police.	50; 6 May 1876 -	Asking him to assist, if necessary, the Vice President of the municipality in removing the body.	Copy.
10	From the Zilla Surgeon, Negapatam, to the Sub-collector.	90; 7 May 1876 -	Giving his opinion that the burial would injuriously affect the water of the tank.	Copy already sent up to Government, with Letter, No. 2764, dated 22 July 1876.
11	From Seshappien to Joint Magistrate.	7 May 1876 - -	Reporting the removal of the body.	
12	From Vice President, Negapatam Municipality, to Joint Magistrate.	36; 8 May 1876 -	Asking for a copy of the District Magistrate's letter on the subject.	Copy.
13	From Joint Magistrate to District Magistrate.	164; 8 May 1876 -	Reporting the removal of the body and the dismissal of the Village Magistrate, with some detailed information.	
14	From Joint Magistrate to Vice President.	167; 9 May 1876 -	Asking him to report about the truth or otherwise of the Village Magistrate's report that the body was removed.	Copy.
15	From the Sub-Collector to the Tahsildar of Negapatam.	610; 11 May 1876 -	Directing the dismissal of the Village Magistrate Seshappien.	Copy.
16	From the Tahsildar and Magistrate of Negapatam to Joint Magistrate.	36; 11 May 1876 -	Explaining his conduct in not preventing the burial.	Enclosure 1, English.
17	From the Town Magistrate, Negapatam, to Joint Magistrate.	112; 13 May 1876 -	Pointing out that the date is omitted in the notice* (to Seshappien to remove a certain wall) that accompanied Joint Magistrate's order,* No. 69, of 8th May.	* Enclosures 2.
18	From Joint Magistrate to Town Magistrate, Negapatam.	71; 15 May 1876 -	Rectifying the error above pointed out.	
19	From the Vice President, Negapatam Municipality, to the President, Negapatam Municipality.	52; 19 May 1876 -	Recommending the dismissal of the municipal servants that failed to give early information about the burial.	
20	From the Vice President, Negapatam Municipality, to the President, Negapatam Municipality.	54; 22 May 1876 -	Submitting the explanation of Beema Row, Municipal Overseer, about his conduct in connection with the burial case.	Enclosure 1.
21	From Town Magistrate to Joint Magistrate.	130; 6 June 1876 -	Requesting to know whether the Joint Magistrate has withdrawn his order about the removal of the wall as Seshappien states.	
22	From Joint Magistrate to Town Magistrate, Negapatam.	80; 8 June 1876 -	Asking that the enclosed two renewed notices† about the removal of the wall be served on the persons that put it up.	† Enclosures 2. Copies.
23	From the President, Municipal Commission, to the Vice President, Negapatam Municipality.	132; 17 June 1876 -	Asking him to obtain and submit explanations of the municipal servants about their conduct.	

List of Papers submitted to Government with District Magistrate's Letter, dated 15 August 1876, No. 3051—*continued.*

	From and to Whom.	Date and Number.	Subject.	Remarks.
24	From the Vice President, Negapatam Municipality, to the President, Negapatam Municipality.	78; 20 June 1876 -	Submitting certain explanation, and stating that no explanation was taken from the Registrar of Births and Deaths and the watchman, as their conduct is indefensible.	
25	From the District Magistrate to the Joint Magistrate.	2496; 1 July 1876 -	Asking for a copy of his order for the removal of the body.	
26	From Joint Magistrate to the District Magistrate.	231; 6 July 1876 -	Sending the above* with translation.*	* Enclosures 2.
27	From Town Magistrate, Negapatam, to the Joint Magistrate.	148; 11 July 1876 -	Reporting the removal of the wall.	Enclosure 1.
28	From the District Magistrate to Mr. Weld, Head Assistant Magistrate.	2693; 14 July 1876	Enclosing draft of his (District Magistrate's) reply to Government petition, and asking why Hathaway's Park was selected for the burial.	
29	From the Head Assistant Collector to the Collector.	185; 21 July 1876 -	Stating why Hathaway's Park was selected.	Copy already sent up to Government, with letter, No. 2815, dated 25 July 1876.
30	From the President, Municipal Commission, to the Vice President, Negapatam Municipality.	152; 27 July 1876 -	Sanctioning the dismissal of the municipal servants concerned.	
31	From the Collector to the Sub-Collector.	2891; 29 July 1876	Enclosing Government telegram† of 28th July, and asking for all papers connected with the burial case.	† Enclosure 1.
32	From the Collector to Mr. Weld, Head Assistant Collector.	2901; 31 July 1876	Asking for an answer to Government telegram above referred to.	
33	From the Collector to the Vice President, Negapatam Municipality.	2931; 2 Aug. 1876 -	Requiring certain information for replying to the Government Official Memorandum, No. 1163, dated 29th July 1876.	Copy.
34	From the Head Assistant Magistrate to the District Magistrate.	123; 3 Aug. 1876 -	Explaining what Hathaway's Park is.	
35	From the Collector to the Vice President, Negapatam Municipality.	2988; 8 Aug. 1876 -	Enclosing copy of Government telegram‡ of 4th August, and asking for an early reply to the questions referred to in Government Official Memorandum of 29th July.	‡ Enclosure 1.
36	From the Vice President, Negapatam Municipality, to the President, Negapatam Municipality.	109; 8 Aug. 1876 -	Replying to the questions asked in the Government Official Memorandum of 29th July.	

Vallam, 16 August 1876.

(signed) *H. S. Thomas,*
District Magistrate.

(True Copies.)

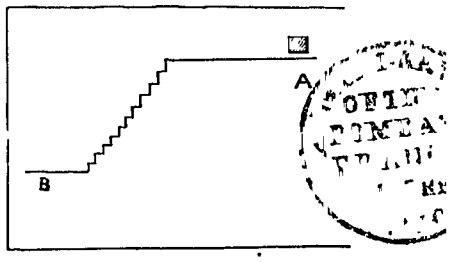
W. Hudleston,
Chief Secretary.

Copies of the English and Abstract of the Vernacular Record in the Negapatam Burial Case.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the District Magistrate of Tanjore, dated Negapatam, 4th May 1876, No. 160.

I have the honour to inform you that this morning Mr. Oliver, the Vice President, Municipal Commission of Negapatam, came to me, and informed me that the body of a certain Brahman was buried on the bank of the Akarakolam, the principal source from which the people of Negapatam obtain drinking water.

2. When I went to the place I found the information to be true, and that the burial took place on Sunday afternoon. The body is buried within 50 feet of the water, between which and the grave is a flight of steps and a brick platform. In this sandy soil the impurities of the body cannot fail to percolate through and pollute the water; the steps can be no protection.



A. Grave
B. Surface of Water.

3. The deceased is the father of the village magistrate of Negapatam, and of the Collector's Sheristadar of North Arcot. His body was buried, not burnt, as he was a Saniyasi. The burial was secretly performed, and I never heard of it till to-day. The worst feature in the case is that Venkatroyalu Nayadu, the Tahsildar of Negapatam, was there countenancing the business, and it was doubtless chiefly owing to his influence that the matter was kept quiet.

4. When I visited the spot I told the village magistrate that the body must be removed, and that I should dismiss him. Since then another of the sons, the North Arcot Collector's Sheristadar, has been up begging me not to enforce the removal of the corpse. He, as well as the village magistrate, represent that it is customary to bury bodies round this bank, but when asked when this was last done they replied that the last instance was some 30 years ago.

5. I consider that the officials concerned, including the Tahsildar, should be severely punished.

6. This burial has been premeditated for the past month, and all things got ready; amongst the rest a wall has been built round the ground intended for the tomb, which, as far as I am at present informed, is an encroachment.

7. I consider that an injunction should be issued to the sons, the village magistrate of Negapatam, and one North Arcot Sheristadar, to remove the body within say a week under Section 519, Criminal Procedure Code, and that they be warned that if they disobey it the body will be removed and they will be prosecuted under Section 188, Indian Penal Code. Shall I do so?

From *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Acting Joint Magistrate of Tanjore, dated 5th May 1876, No. 1724.

I am just in receipt of your letter, No. 160, dated 4th May 1876, and by the same train the North Arcot Collector's Sheristadar, who is the son of the deceased, has waited on me.

2. I cannot judge of the matter as you can, because I am not in possession of all the facts. For instance, the son states that it is a burial-place which has not been and cannot be closed except in due course under the Municipal Act; from your letter it is inferable, but it is not positively stated that this is not a fact.

3. If it be no burial-place there is no doubt that the body should be promptly removed. The son says it was buried with salt, which he was told was as much as 240 seers. If it was properly dispersed no harm may have yet ensued, but eventually decomposition must take place, and the percolation must naturally be in the direction of the water, which is the main drinking supply of the town of Negapatam.

4. If these premises then be so, I do not see how there is room to doubt that the burial must necessarily cause danger and annoyance to the persons who have occasion to use the public right of drinking the water of the Akarakolam, and that is the penal code definition of a public nuisance, and if these be the circumstances, I do not see why you should have delayed to do your duty where delay is dangerous; for if danger is to be averted it must

be by removal before decomposition, and this can be done by the sons under an order issued as you propose. Disobedience to such an order would in this case bring the disobeyer under the heavier penalties of Section 188 in that the disobedience tends to cause danger to human life and health.

5. I do not understand how the wall can have been built so close to the Akarakolam without the knowledge of the municipality; the son says it was with their sanction a month ago.

6. If it be, as I gather from your letter, that this glaring offence against sanitation has been premeditatedly done and supported by the tahsildar, then it is only another case coming close after the former, of the sub-magistrate opposing the proper action of the municipality, and a term must be put to such antagonism. It has long been decided that this tahsildar should be compelled to retire, and the recent postponement of it must now be cancelled, and he should be told to give in his resignation immediately, for even if it were a burial-ground he must have known it was an outrageous offence against sanitation thus to poison the main source of drinking water for the town, and he should have informed you, and at least discouraged it till your mind was known.

7. The village magistrate also should be promptly dismissed.

8. Was the town sub-magistrate also quite ignorant of what was being done, and did the police know nothing, and were there not municipal officers who should have known and informed you earlier than they did?

9. Rule in Negapatam seems to be much disorganised.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Tahsildar and Magistrate of Negapatam, dated 5th May 1876, No. 55.

Vernacular record.

ABSTRACT.—Intimating that it appears that he (the tahsildar) was present at the burial on the bank of the Akarakolam tank of the dead body of the father of Sashappa Iyen, the village munsif of Negapatam, who died after having become a Saniyasi; and directing the tahsildar to report if he were at the burial, why he did not prevent it, specifying the reasons for the same.

GENERAL REGISTER of PETITIONS presented to the Collector of Tanjore, 1876.

General Register Number.	From Whom.		Date of Petition.	Purport.	Final Order.	
	From such and such Village in such a Subdivision.	Taluq.			Purport.	No.
1.	2.	3.	4.	5.	6.	7.
712	Sadagopayengar, residing at Negapatam, Perumal Covil-street.	Negapatam	5 May 1876	Requesting that orders may be issued for not allowing the corpse of Oopasasasthriar, father of the village Munsif of Negapatam, to remain where it is buried on the side of the tank, it being injurious to the health of the people.	Returned being unstamped.	183

(signed) *H. S. Thomas*,
Collector.

To *H. S. Thomas*, Esq., District Magistrate of Tanjore.

The humble Memorial of the undersigned Inhabitants of Negapatam.

Most honoured Sir,

WITH due deference we beg to state that, on Sunday the 30th ultimo, a Hindu gentleman of 85 years of age, named Oopasasasthriar, of Negapatam, breathed his last. About two months previous he had entered upon the fourth and the holiest of the orders of life amongst the Saniyasis, technically known in the Hindu Sashtras as "Paramhamsa asramam." His body, which became highly consecrated as it were under the above circumstances, was enshrined on the said day of his soul's sacred departure on the northern bank of the tank called "Akarakolam." The deceased having been a highly-educated Sastry in the Auchara, Prayaschettar, and Carmacanda portions of the Hindu Vatas and Sashtras, and having been equally celebrated for his good and virtuous character, the procession to the burial-ground was largely attended by people of all classes of the local Hindu

Hindu community. The body was buried underground, nine feet deep, in the midst of a large quantity of salt thickly poured on all sides of it, as well as over and below it. This mode of burying the dead body is dictated by the Vadantic system of philosophy, with the apparent view of avoiding the corpse getting rotten below, and producing any result of a noxious nature. The Sashtras prescribe that bodies of worthy men of the kind should be interred in places to which the public resort for bathing, making ablutions, and for meditating, and it is no bad idea that arrangements to commemorate the names and recollections of eminent ancestors are made by giving a residence to their sacred bones near tanks, and by the side of pleasant running brooks. On the banks of the said Akara-kolam, a custom of burying the dead bodies of all classes of Saniyasis has been long since prevailing even after the said tank was included within the Municipality. By way of proving such a fact a visitor can even this day meet with the small brick columns erected over the dead bodies in bygone years; over the tombs of some of these the tree called "Arasu" has been made to grow and is still growing with its wide and leafy branches. Moreover it is not a fashion obtaining in Negapatam alone, but it is the orthodox usage having force over the countries watered by the Thamberpurny, the Vigai, the Cauvery, the Ganges, and all the sacred rivers and tanks situated anywhere between Comorin and Himalayas. Under the highly rigid rules of Hinduism it is only one among ten thousands that is admitted into the rank of Saniyasi, and indeed it is to a very selected few of them honourable burial of the above sort is accorded by the community at large. Between the place where the interment has taken place and the limit of the water of the said tank when it could be quite full, there is about 50 feet of ground, and percolation is strongly guarded against by the existence of brick ghauts, constructed with long steps one over another, and reaching a depth of 30 feet. Percolation is further prevented by the foundation of a wall between the grave and the tank. The sloping of the ground on the side of the grave being also northward, there is not the slightest chance whatever of any contagion spreading underground to the water.

2. The remains being no more than a skeleton, in consequence of the deceased having been too much advanced in age, it is apt to be speedily consumed by the quantity of salt poured all around it, and there is no reason to be afraid of the interment sending forth any contaminating effects.

3. Under such circumstances your Honor's humble memorialists deeply regret to say that the Joint Magistrate of Negapatam, under the powers given him by Criminal Procedure Code, Section 519, has ordered the disinterment and removal of the said sacred person's body within a week.

4. Exhuming the sacred body is, according to our Sashtras, a sacrilege, and is strictly prohibited under the belief warranted by our Sashtras, that any disturbance to such interment has, we beg to submit, the effect of producing a fatal and evil consequence to the religious and social welfare of the Hindus. We, your Honor's memorialists, beg to submit, for your Honor's gracious and liberal consideration, that it is highly dangerous if executive officers, municipal or magisterial, were arbitrarily to decide questions of the above nature, and disturb by coercion the established current of religious doctrine over all the land of India, with its millions of people, and that without any inquiry or investigation. It is our humble belief that as Act III. of 1871, by Section 133, gives to Municipal Commissioners (whenever they deem it necessary) power only to prevent the formation of new burial-grounds, the interment under consideration having taken place in a locality where such things are used to be done is in no way contrary to the municipal law.

5. Further, it is admittedly true that the spot in question has been more than once utilised by the people for this purpose, even after the tank was brought within the municipality, and the fact of the municipal authorities having been silent on those occasions, is undoubtedly to be construed as a connivance at such a practice, and impliedly conveys an assurance that they have sanctioned the practice. Had they been dissatisfied with this custom, they should have prohibited the same, by adopting the procedure contemplated by Section 134 of the above Act, and the absence of such a procedure on their part takes this act away from the scope of public nuisance, and in consequence, the interment being once done is not a thing to be criminally noticed, the above section strictly requiring the evidence of competent persons being gone into as to the dangerousness of the burial-ground, and authorising upon due notice and deliberate consideration alone the closing of a burial-ground after satisfying themselves about the existence of another suitable burial-ground situated near enough. We are of opinion that even the proceedings of a magistrate exercising full powers regarding the burial-ground should be regulated by sound consideration of the reasons manifested in the above section of the Municipal Act, and should have a due regard to the religious feelings of the community.

6. In conclusion, we beg to approach your Honor with this memorial, with a request that a liberal and equitable consideration may be paid, and that an order may be issued to the effect that the interment under consideration may not be disturbed to the prejudice of the religious feelings of the Sivah and Smarta classes of the Hindus.

(signed) *S. Chucrapany* and 64 others.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Village Magistrate of Negapatam, dated 6th May 1876.

Vernacular record.

ABSTRACT.—Directing the removal, within the night of the 13th instant, of the corpse of his father, which has been buried on the bank of Akarakolam tank, whose water is used for drinking purposes by the inhabitants, as the humours from the dead body would percolate into the tank, and produce disgust and sickness to the people; and informing him that if he fails to do as directed, he will be prosecuted under Section 188 of the Indian Penal Code, and that the corpse will be removed and buried in Hathaway's Park, or disposed of in any other way which may appear convenient.

Statement of Objections.

THE place where our father's remains have at present been interred is a locality which, from time immemorial, has been appropriated for the interment of Brahman Saniyasis and others. There is no other place in the municipality set apart for the same, nor has the municipality or magistracy ever expressed their disapprobation thereof by closing the ground or otherwise. No more than about three years ago there have been interments there of a similar nature, which have been tacitly allowed.

2. The way in which the body has been interred is such as not to cause any harm to the sanitation of the public, because as much as 10 kalums of salt have been carefully thrown round the body so as to eat up any impurities that it may cause.

3. The interment of the body is one of a strictly religious nature. The deceased was a Saniyasi, and a venerable old Brahman, of nearly 85 years, and such a halo of sanctity envelopes his tomb in the eyes of the public, that, should we be compelled to disturb it, it will be a grave sacrilege in the public opinion, not to speak of the extreme pain to our own feelings it will cause. This opinion of the public may lead to grave social harm to ourselves, which may even go the length of our excommunication from our caste.

4. We therefore beg that the honourable court, whatever it may think it judicious to order about matters of this sort in future, will be pleased to let this interment undisturbed in consideration of the foregoing circumstances.

(signed) *L. Saminada Pillay*, *T. K. Munusami*, } Pleaders.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Vice President of the Municipal Commission, Negapatam, dated Negapatam, 6th May 1876, No. 162.

I HAVE the honour to inform you that I have issued an order under 519, Criminal Procedure Code, for the removal of the body buried on the banks of the Akarakolam, warning the persons concerned that if it is not removed before Tuesday next, 9th, that it will be removed.

2. I therefore request that you will see that it is removed, and if it is not removed on Tuesday, that you will on that day have it removed by the municipal servants. It may be buried in Hathaway's garden, or disposed of as may be most convenient.

3. I have sent the enclosed order to the inspector of police. Why did not the tank kavulgars or some of the other municipal servants give earlier information of the burial?

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Inspector of Police, Negapatam, dated 6th May 1876, No. 50.

Vernacular record

ABSTRACT.—Directing him to be present and to assist the Vice-President of the Municipality, if requested by him, in removing the dead body of the father of Sashappa Iyen, the village Munsif of Negapatam, which has been buried on the bank of Akarakolam tank.

From Surgeon *L. Beech*, Acting Zillah Surgeon, Negapatam, to the Sub-collector of Tanjore, dated 7th May 1876, No. 90.

WITH reference to our conversation of 5th instant, I have the honour to inform you that I visited the Akarakolam in company with Mr. Oliver, the Vice President of the Municipal Commission, and it is my opinion that, notwithstanding there being a flight of steps which are between the tank and the grave of the deceased, organic and other decomposing matters must obtain entrance into the tank in question from the body of the Brahman, who was buried within 15 or 20 yards of the edge of the tank, and from the nature of the soil which is sandy, the percolation would be carried on under the most favourable conditions imaginable.

From *Sashappa Iyen*, Village Magistrate of Negapatam, to the Acting Joint Magistrate of Tanjore, dated 7th May 1876.

ABSTRACT.—Acknowledging the receipt of the order of the 6th instant, directing him to remove, within the 13th instant, the corpse of his father which had been buried on the bank of the Akarakolam tank at Negapatam. Reports that as he was informed that the joint magistrate wished at first to have the body removed within the 9th instant, he has this day, *i.e.*, the 7th instant, had it removed to the nunjah land, in the village of Jaggannathapurum and lying to the north of the above-said tank, which land he on the same day purchased and showed to the Vice President of the Municipality, and obtained a license from him and interred the dead body at that place. **Vernacular record.**

Representing that he is a poor man having a (large) family; that he has no other means of livelihood than his appointment; that he has already incurred large expense in the matter and sustained heavy loss; and that his conduct and ability would be evident if an inquiry be instituted. Requests that the joint magistrate will be mercifully pleased not to deprive him of his employment in any way.

From *F. Oliver*, Esq., Vice President of the Municipal Commission, Negapatam, to the Acting Joint Magistrate of Tanjore, dated Negapatam, 8th May 1876, No. 36.

I HAVE the honour to acknowledge your letter of the 6th May, No. 162.

2. The friends of the deceased person assured me that you allowed them time up to Saturday next to remove the corpse from the bank of the Akarakolam, and engaged to produce before me your written permission to that effect, but your letter under reply names Tuesday for the date I have to take notice of their default.

3. In the letter from the district magistrate on this subject which you kindly allowed me to peruse, there is more than one matter that the Commissioners should notice, and I shall be obliged by your sending me a copy if you see no objection to my request.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the District Magistrate of Tanjore, dated Camp Perellam, 8th May 1876, No. 164.

I HAVE the honour to reply to your letter of the 5th instant, No. 1724.

2. Even if the place where the Saniyasi has been buried were clearly shown to be a burial-ground, and even to be private property, it would be no reason for not issuing an order to remove the nuisance. Nuisances created by factories, &c., are, as a rule, on private property, but a man may not even use his private property to the detriment of the public health.

3. There is, however, nothing to support the contention that the place is a burial-ground except the vague assertion that some one was buried near the place some 30 years ago, and that a Sudra Saniyasi was buried on another part of the tank bank three or four years ago; but if the authorities were careless then it is no reason they should be so again; that fact that burials have been made round the tank at long intervals of time does not constitute the tank banks a burial-ground. It is entered in the Pimash as a Brahmans' bathing-place.

4. The wall was built with license from the municipality; the license permitted the erection of a wall, so as to make a place for Brahmans to bathe in, screened from the gaze of passers-by, provided he leaves it open to all desiring to use it. He built his wall, put a door to it, on which he put a padlock, and buried his father inside. I believe that

all through he was slowly preparing this place for his father's burial. The body was removed on Sunday, 7th; *vide* report of the village magistrate, which I enclose. I also enclose a letter from Dr. Beech on the subject, and the petition sent with your endorsement of the 6th instant, which directs me to return it.

5. I have directed Venkatroyalu Nayadu, the Tahsildar of Negapatam, to resign at once. I recommend that he be suspended at once, and his successor sent to take charge at Trivalore, that I may be able to go on with the Jummabundy on the 15th.

6. I have also dismissed the village magistrate, as you say rule in Negapatam is quite disorganised. I recommend that the town sub-magistrate be sent back to the police; he has shown himself quite unfit for his post. Even if he is frightened into proper behaviour for the present he will relapse on the first opportunity. He is the chief cause of the disorganisation of authority. I am certain he knew all about the burial, but I cannot prove it.

7. The police inspector, going by an old G.O. of 1866, believed the Akarakolam to be beyond the limits, and never kept a watch there. He has been set right on this point. I may remark that he once wrote asking the Commissioners to inform him what are the municipal boundaries, but got no answer. Mr. Oliver and the Commissioners foolishly, as I think, considering it *infra dig* to correspond with him, it is to be regretted they did so, thus displaying themselves a fine instance of that spirit of obstructiveness and want of harmony of which they complain in others.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Vice President of the Municipal Commission, Negapatam, dated Perellam, 9th May 1876, No. 167.

WITH reference to your letter, No. 36, dated 8th instant, I have the honour to inform you that Sashappa Iyen, village magistrate of Negapatam, sent up a report to me yesterday, stating that his deceased father's body was removed from the Akarakolam tank bank on Sunday the 7th instant, and buried in a place approved of by you, and to request you to let me know if this is true.

2. As requested by you, I herein enclose a copy of the district magistrate's letter, No. 1724, of 5th instant.

From the Acting Sub-collector of Tanjore, to the Tahsildar of Negapatam, dated 11th May 1876, No. 610.

Vernacular record.

ABSTRACT.—Informing him that Sashappa Iyen, the Village Munsif and Puttah Moniagar of Negapatam, has been, from the 6th instant, dismissed from his appointments on account of his having buried the dead body of his father close to the water of Akarakolam tank, which has been useful to many people for bathing and drinking purposes, so as to contaminate the water, while he is bound to prevent such acts on the part of others; and directing to strike off his name from the service register, and to recommend competent persons for the place, and send them to the Acting Sub-collector.

From *R. Venkatroyalu Nayadu*, Second-class Sub-Magistrate, Negapatam Taluq, to the Acting Joint Magistrate, Tanjore, dated Negapatam, 11th May 1876.

WITH reference to your Honor's Order, No. 55, dated 5th instant, calling upon me to explain my reasons as to why I did not prevent the burial of the Negapatam Village Munsif's deceased father (who took Saniasum and died) on the side of Akarakolam tank, if I had been to the spot on the occasion, I humbly beg to submit this explanation on the subject, fully trusting that it would meet with your Honor's approbation.

2. Just as the other inhabitants of Negapatam I was also informed, at about 2 p.m. on the 30th ultimo, that Voobasastrial, the father of the said Village Munsif, who took Saniasum, had died, that his body was being carried for interment, and that I should attend the ceremony.

3. The dead body, accompanied by about 2,000 inhabitants of Negapatam and with native music, &c., was brought to the northern side of the "Akarakolam," where it is customary to inter the bodies of Saniyasis who died at Negapatam. In conformity with the Hindu religion and custom, I went to the spot at 3 p.m. to reverence the dead body of the Brahman "Saniyasi" on the occasion of its burial. I saw a pit had been dug out for the interment of the deceased "Saniyasi," and also walls erected around the pit with a gateway

a gateway and door. I was given to understand that the said walls have been erected under a license obtained from the municipality.

4. At the time of the interment in question about 2,000 inhabitants of Negapatam of all classes, such as Brahmans, Chetties, Soodras, &c., who use the water of the "Akarakolam" were presented at the spot; they did not raise any objection to the burial in question on the score that it would cause danger to the health of those who use the water of the said tank; it is customary to bury the bodies of "Saniyasis" who died at Negapatam on the western, northern, and eastern sides of the said tank; the interments of the deceased "Saniyasis" on those sides of the tank were not objected to at any time either by the people or by authorities; the grave had been dug and other preparations made for the interment before I went to the spot; it did not occur to my mind that the said interment would cause danger to the health of the people who use the water of that tank; for these reasons I did not prevent the burial in question.

5. It will be apparent from the fact of my having often complained to the sub-collector and to the municipal commissioners that the inhabitants of Negapatam are in great need of good water, and that some measures should be adopted to meet the demand; that I am a stern advocate of the welfare of the people of Negapatam, especially with regard to their water supply, and that I would have strongly objected to and stopped the interment of the said deceased Brahman "Saniyasi" if I had thought in the least that the same would produce injury to the health of those who have a right to the use of the water of the "Akarakolam."

6. Under the above circumstances, I humbly beg that your honour will be pleased to see that I was not in a position to prevent the burial in question.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Sub-Magistrate of Negapatam Division, dated Negapatam, 8th May 1876, No. 69.

ABSTRACT.—Informing him that a notice is sent herewith, to be served upon Sashappa Iyen, the village Munsif of Negapatam, enjoining him to pull down the stone wall which he has built on the northern bank of Akarakolam Tank, as it causes obstruction of way, and directing the sub-magistrate to get the notice served on the person named, and to report whether the wall is pulled down within the date specified in the notice. Vernacular record.

From the 3rd-Class Magistrate of Negapatam Division, to the Acting Joint Magistrate of Tanjore, dated 13th May 1876, No. 112.

ABSTRACT.—States that he received the Order, dated 8th instant, No. 69, but that in the notice, which was sent by the joint magistrate, ordering the removal of the wall which Sashappa Iyen built on the northern bank of Akarakolam Tank, causing thereby inconvenience to the passers by, the date within which the wall should be pulled down has not been inserted, and that the Notice has, therefore, been returned, with the request that it may be sent back to him after having the date inserted.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Village Munsif of Negapatam, dated 15th May 1876.

NOTICE.—Directing him to demolish the wall built by him on the northern bank of Akarakolam Tank, causing thereby obstruction of way both to men and cattle, and to remove the obstruction within the 25th instant; and informing him that if he is unable to execute the above order, he should appear before the joint magistrate in person at 12 o'clock on the 15th instant, and state the reasons for the same.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Town Magistrate of Negapatam, dated 15th May 1876, No. 71.

ABSTRACT.—Returning the Notice, sent with his urzi, dated 13th instant, No. 112, with the date inserted in it, and directing him to serve it if the wall has not yet been removed, but if the wall has been pulled down to return the notice unserved. Vernacular record.

From *F. Oliver*, Esq., Vice President of the Municipal Commission, Negapatam, to the President of the Municipal Commission, Negapatam, dated Negapatam, 19th May 1876, No. 52.

THE Commissioners considered in their meeting the late burial of a corpse on the banks of the Akarakolam, and also had before them copy of the district magistrate's letter to the joint magistrate, No. 1724, dated 5th May 1876.

2. I am desired to note for your information the following facts:—

3. On the 3rd February 1876, one Iyasami Iyen applied for permission to build a wall and verandah on the bank of the Akarakolam "where the Brahmans bathe." This was reported upon by the inspector, and, after a full discussion at a meeting, the permission was granted on condition that it be open to the public. This permission to Iyasami Iyen was evidently appropriated by Sashappa Iyen, the municipal registrar of births and deaths, and he built a walled enclosure on the site, and buried his father there without asking or obtaining the Commissioners' permission; and here I am to state that Commissioner R. Venkatroyalu Nayadu was both present at the meeting and took part in the discussion when the permission to Iyasami Iyen was granted, and the Commissioners learn that he was also present at the funeral of Sashappa Iyen's father. The Commissioners hold their servants responsible—

1st. For the unauthorized erection of a walled enclosure not being detected and reported to them.

2nd. For neglecting to report the intended burial of a corpse on the tank bank.

3rd. For neglecting to make any report whatsoever of the burial, even after it had taken place.

It has been satisfactorily ascertained that Mr. Muir, the inspector, was absent from the town on duty when the walled inclosure was erected and the burial took place, he is therefore acquitted.

Beema Row, the sanitary overseer, in immediate charge of the division; Sashappa Iyen, the registrar of births and deaths; Alagan, the divisional peon, and the tank watchman, are all guilty of one or all of the three offences, and I have the honour to recommend their prompt dismissal at the desire of the Commissioners.

From *F. Oliver*, Esq., Vice President of the Municipal Commission, Negapatam, to the President of the Municipal Commission, Negapatam, dated Negapatam, 22nd May 1876, No. 54.

I HAVE the honour to forward herewith a petition presented by Beema Row, the sanitary overseer, for your perusal.

From *Beema Row*, Sanitary Inspector, to the Vice President of the Municipal Commission, Negapatam, dated Negapatam, 20th May 1876.

To my great surprise and sorrow I heard this day that at the last meeting your honour passed a resolution that I and some other municipal servants should be removed, on the ground of our not having given due information to your honour of the burial of a corpse on the Akarakolam Tank bank, to which I humbly beg to submit this explanation, with a view that your honour will be pleased to take it into your favourable consideration:—

2. On the day the burial took place, and on the following two days, I was so busily engaged in going through the streets to look to sanitary arrangements both morning and evening that I did not hear anything about the burial at all. On the noon of the 3rd instant, when I went out as usual, I learnt that there was a corpse buried on the tank bank, and I immediately went over to the spot and inspected it. Finding that such was the fact, I made an entry of that in my diary, and reported the matter to your honour that very evening. Consequently the delay in giving information to your honour, and not on account of carelessness on my part, was caused.

3. I have been holding my present post for the last four years, and on no occasion was I found fault with for neglect of duty or for connivance at any violation of the Municipal Act by the people of the town, and I have been throughout giving entire satisfaction to your honour. I beg to say that in this burial case I was perfectly innocent, and I could have had no motive in keeping the matter secret and thereby bringing ruin upon myself. Under these circumstances I humbly beg that your honour will be graciously pleased to take my pitiable case into favourable consideration and allow me to hold my post. I have got a large family to maintain, and I entirely depend upon the bare pay I now draw for my support.

From the Third-class Magistrate of Negapatam Division, to the Acting Joint Magistrate of Tanjore, dated 6th June 1876, No. 130.

ABSTRACT.—Reports that the notice, received with the order, dated 15th May last, No. 71, was, on the 16th of that month, served on Sashappa Iyen, the village Munsif of Negapatam, but that he had not yet pulled down the wall which he has built on the way to the Akarakolam Tank, although ten days have elapsed since the date specified in the notice for the demolition of the wall; and that when questioned, Sashappa Iyen has replied that the joint magistrate told him that he need not remove the wall; but that no intimation of the same has been given to the third-class magistrate. Vernacular record.

Prays, therefore, to be informed whether the joint magistrate has withdrawn his order to remove the wall.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the Sub-Magistrate of Negapatam Division, dated 8th June 1876, No. 80.

ABSTRACT.—Directing him to serve the notices herewith sent on Sashappa Iyen, the late village Munsif of Negapatam and on Iyasami Iyen, and to report in detail whether they have pulled down the wall built by them on the northern bank of Akarakolam Tank, so as to cause obstruction of way, within the date specified in the notices. Vernacular record.

NOTICE.

THE Acting Joint Magistrate of Tanjore hereby directs that Sashappa Iyen, the village Munsif of Negapatam, should remove, within the 14th instant, the wall which has been built by him on the northern side of Akarakolam Tank, causing thereby obstruction of way both to men and cattle; but that if he cannot carry out the above order, he shall appear before the joint magistrate at 12 o'clock on the 13th instant and report the same.

8 June 1876.

NOTICE.

THE Acting Joint Magistrate of Tanjore hereby directs Iyasami Iyen, residing at Negapatam, that as it has been reported to the joint magistrate that he (Iyasami Iyen) has raised a wall so as to cause obstruction to the way lying to the north of Akarakolam Tank and inconvenience to the men and cattle that pass by the way, he shall break down the wall and remove the obstruction within the 14th instant; but that if he cannot do so, he shall state the reasons for the same to the joint magistrate by appearing before him on the 13th instant at 12 o'clock, noon.

8 June 1876.

From *H. S. Thomas*, Esq., President of the Municipal Commission, Negapatam, to the Vice President of the Municipal Commission, Negapatam, dated Point Calimere, 17th June 1876, No. 132.

WITH reference to your letter dated 19th May 1876, No. 52, I have the honour to request you will be good enough to obtain and forward to me any explanation that the municipal servants referred to may have to give, with your remarks thereon, before I can sanction their dismissal.

From *F. Oliver*, Esq., Vice President of the Municipal Commission, Negapatam, to the President of the Municipal Commission, Negapatam, dated 20th June 1876, No. 78.

I HAVE the honour to acknowledge the receipt of your No. 132, dated 17th June 1876.

2. The explanation furnished by the overseer Beemah Row was forwarded on the 22nd May 1876, with my letter No. 54, and I have the honour now to enclose the explanation furnished by the Peon Alagappen. The registrar of births being the chief offender, I did not ask him for an explanation, as I consider his conduct and that of the watchman as indefensible.

From *Allagappen*, a Peon of the Municipality of Negapatam, to the Vice-President of the Municipal Commission, Negapatam, dated 27th May 1876.

STATES that he has served the municipality faithfully for the last ten years, during three of which he received no pay; that on a certain Sunday, a few days ago, he did duty up to twelve o'clock noon, and having obtained from his inspector leave of absence for the rest of the day, went to Nagore to be present at the celebration of a marriage in the house of one of his relatives; that when he returned to duty on the next morning he was told that the father of the village Munsif of Negapatam was dead, and that his body was buried on the bank of Akarakolam Tank by his relatives, in the presence of one of the municipal commissioners, the Tahsildar, and other native gentlemen; and that he did not report the occurrence, thinking no wrong had been done.

From *H. S. Thomas*, Esq., District Magistrate of Tanjore, to the Acting Joint Magistrate, Negapatam, dated Calimere Point, 1st July 1876, No. 2496.

I HAVE the honour to request you will be good enough to furnish me with a copy of the order issued by you to Sashappa Iyer and others for the removal of the corpse buried in the northern bank of the Akarakolam, to allow of my enclosing it in a report called for by Government.

From *M. R. Weld*, Esq., Acting Joint Magistrate of Tanjore, to the District Magistrate of Tanjore, dated Negapatam, 6th July 1876, No. 231.

WITH reference to your letter of the 1st instant, No. 2496, I have the honour to forward herewith a copy of the order (with a translation thereof in English) issued by me, under Section 519 of the Code of Criminal Procedure, to Sashappa Iyer, to remove the corpse buried in the northern bank of the Akarakolam at Negapatam.

Under Section 519, *Criminal Procedure Code.*

To *Sashappa Iyer*, Village Munsif of Negapatam.

WHEREAS you have buried the body of your deceased father on the Akarakolam Tank bank, which contains good water useful to the public at large for drinking purposes: And whereas the impurities of the body, by percolating through and polluting the water, will cause injury and sickness to those using the water; I do hereby direct and require you to remove the said body of your father before the night of Saturday, the 13th instant. If you do not remove it within that time, you will not only be prosecuted under Section 188, Indian Penal Code, but also the body will be removed by the Government and buried in the place called "Hathaway's Park," or will be disposed of in whatsoever manner it will be most convenient to do.

(signed) *M. R. Weld*,
Acting Joint Magistrate.

Negapatam, 6 May 1876.

From *T. S. Kistnasamy Chetty*, Third-class Magistrate of Negapatam Division, to the Acting Joint Magistrate of Tanjore, dated 11th July 1876, No. 148.

Vernacular record.

ABSTRACT.—Reports that the two notices received with the order dated 8th ultimo, No. 79, were, on the 12th of that month, served upon Sashappa Iyer and Iyavier, referred to therein, and that the wall constructed by them on the bank of the Akarakolam Tank has been completely demolished and the obstruction removed.

To the Negapatam Station Officer.

YOU are directed to serve the two notices herewith sent on Sashappa Iyer, the late village Munsif of Negapatam, and on Iyavier, residing at the same place; and to return this order, endorsing thereon the fact of the notices having been served upon the persons.

(signed) *T. S. Kistnasamy Chetty,*
9 June 1876. Third-class Magistrate.

THE two notices referred to in this order have been served on the parties mentioned therein on the 12th instant.

(signed) ————————,
12 June 1876. Head Constable.

From *H. S. Thomas,* Esq., Collector of Tanjore, to the Head Assistant Collector, Tanjore, dated Calimere Point, 14th July 1876, No. 2693.

WITH reference to the enclosed Government petition, dated 5th ultimo, No. 1392, and my draft reply, both which please return, please put me in a position to explain the selection of Hathaway's Park as a place of interment, and offer any further remarks you wish. Why was Hathaway's Park preferred to other Hindu burial-places authorised by the municipality?

Please expedite your reply.

From *M. R. Weld,* Esq., Acting Head Assistant Collector, to the Collector of Tanjore, dated Tanjore, 21st July 1876, No. 185.

WITH reference to your letter of 14th July 1876, No. 2693, I have the honour to inform you that I stated in the order that if the body of the Saniyasi was not removed by the relatives, it would probably be buried in Hathaway's Park, because the vice president of the municipality, on being asked by me where the body could be buried, replied that there was no other waste ground at his disposal, and that if we were obliged to remove the body, that was the only place in which we could put it.

2. I was, as you have observed of yourself, very sorry for the sons, and suffered a great conflict of feeling when resisting their entreaties, and when pleaders Saminadiyar (late Government pleader) and Annasami Ayyar, old acquaintances of mine, came to speak about it, I consulted them as to the ceremonies and times at which they should be observed, and settled the time specified in the order in accordance with what they told me. I am sure that they will bear me out when I say that I did all I could to render the matter as little hurtful to the feelings of the family as was consistent with insisting on the removal of the body.

3. I return the enclosures.

From *H. S. Thomas,* Esq., Collector of Tanjore, to the Chief Secretary to Government, dated 25th July 1876, No. 2815.

IN continuation of my letter, No. 2764, dated 22nd July 1876, I have the honour to forward the inclosed, this day received from the head assistant magistrate, and to return the Government petition.

From *H. S. Thomas,* Esq., Collector of Tanjore, to the Vice President of the Municipal Commission, Negapatam, dated Point Calimere, 27th July 1876, No. 152.

I HAVE the honour to sanction the dismissal of the municipal servants referred to in your letters, Nos. 52 and 78, dated 19th May and 20th June 1876.

Telegram from the Chief Secretary to Government to the Collector of Tanjore, dated Ootacamund, 28th July 1876.

REPORT at once what is meant by Hathaway's Park at Negapatam, and what is it used for. Send at once Weld's report to you, and any other papers connected with case not already submitted.

From *H. S. Thomas*, Esq., Collector of Tanjore, to the Sub-Collector, dated 29th July 1876, No. 2891.

WITH reference to the accompanying copy of telegram from Government, please send me all the papers in the case.

Copy to Mr. Weld, and of enclosure for information.

From *H. S. Thomas*, Esq., Collector of Tanjore, to the Acting Head Assistant Collector, dated 31st July 1876, No. 2901.

WITH reference to the Government telegram which I have sent you, I shall be obliged if you can supply me with an answer for the papers I have asked the sub-collector.

From *H. S. Thomas*, Esq., Collector of Tanjore, to the Vice President of the Municipal Commission, Negapatam, dated Point Calimere, 2nd August, 1876, No. 2931.

PLEASE put me, with the least possible delay, in a position to reply to the enclosed questions* of Government.

Copy to sub-collector for information, with copy of enclosure.

From *M. R. Weld*, Esq., Acting Head Assistant Magistrate, to the District Magistrate of Tanjore, dated Tanjore, 3rd August 1876, No. 123.

IN reply to your letter, No. 2901, dated 31st ultimo, I have the honour to state that Hathaway's Park is a large piece of waste ground of which part, the south-east corner, next the salt creek, the Devanadi, is used as a place for burying night-soil; part, which is covered with a soil composed of old decomposed sweepings, is a garden; and part, the south-west corner, which is tolerably high, is not now used for any purpose; it was once, I believe, a salt-pan, and is now simply a piece of ordinary waste land separated by a valley from the place where the night-soil is buried, and from the garden.

2. As I have already informed you, I said in my order that if the body was not removed I might be obliged to bury it in Hathaway's Park, because Mr. Oliver told me that the municipality had no other piece of waste at their disposal. You will observe that I did not say I would certainly bury it there, but that I might be obliged to do so. This is all my words amount to. Had I been unable to find a better place, I should have been obliged to bury it there. I could not tell whether a better place was to be found till I tried, and I did not see the necessity of trying till I found myself obliged to exhume the body. It was as well to point out the worst that might happen if my order to exhume were not obeyed.

3. Had

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* Official memorandum from Chief Secretary to Government to the Collector of Tanjore, dated Ootacamund, 29th July 1876, No. 1163.

With reference to his letter, dated 22nd July 1876, No. 2764, the Collector of Tanjore is requested to send replies to the following questions with the least possible delay:—

Has the Negapatam municipality prohibited burials on tank bund by any public order?

Is "Hathaway's Park" an established cemetery or burial ground?

Is it used as a place for depositing rubbish?

Have the municipality closed by order any and what burial grounds?

Have the municipality provided any new burial grounds for Brahmans?

(By order),

(signed) *W. Hudleston*, Chief Secretary.

3. Had I been obliged to exhume the body, I should certainly have consulted the Tahsildar and others as to how the business might be done, and where the body might be buried, so as to hurt the feelings of the relatives as little as possible. Because I, rather incautiously, mentioned Hathaway's Park in my order, it has been hinted to Government in the petition that I acted harshly and insolently, and so as to outrage the feelings of the relatives as much as possible. This is altogether the reverse of what I really did. I (as I have already stated) asked the Pleaders as to the times, &c., of the ceremonies, so that I might fix a time for the exhumation which would best suit the relatives, and I fixed the time according to what the Pleaders told me, after consulting the relatives. The Pleaders also told me that I would not have to exhume the body, as it would be exhumed by the relatives, so that actually, when I used the threat, I fully believed that I never would have to carry it out. They expressed themselves at the time grateful to me for the consideration shown them, but, Brahmin-like, they were ready to stab in the dark, and, seeing the advantage to be gained by my unguarded expression, have given the Government to understand that I acted with unfeeling insolence instead of with the fullest consideration compatible with enforcing my order.

Telegram from the Chief Secretary to Government, to the Collector of Tanjore, dated Ootacamund, 4th August 1876.

REPLY to memorandum of 29th July not yet received. Expedite despatch. Telegraph date.

From *H. S. Thomas*, Esq., President of the Municipal Commission, Tanjore, to the Vice President of the Municipal Commission, Negapatam, dated 8th August 1876, No. 2988.

WITH reference to enclosed copy of telegram, please expedite the reply sought in my letter, No. 2931, dated 2nd August 1876.

From *F. Oliver*, Esq., Vice President of the Municipal Commission, Negapatam, to the Collector of Tanjore, dated Negapatam, 8th August 1876, No. 109.

WITH reference to your letter, No. 2931, dated 2nd August 1876, I have the honour to reply to the questions of Government* as follows:

* *See* foot note, preceding page.

1. No, because the practice of burials on tank bund does not exist.

2. "Hathaway's Park" was a swamp, an abandoned salt vady, reclaimed by the municipality. It never was an established cemetery or burial-ground.

3. Yes, having been transferred to the municipality by Government for that purpose (G.O., Revenue Department, 8th December 1869, No. 3133).

4. The municipality have not closed any burial-grounds.

5. No Brahman burial or burning-grounds are situated within municipal limits. The only burning-ground used by Brahmans is situated just outside the town, near Toll-gate No. 2, Velipaliam, and there has never been any interference with it.

(True copies.)

W. Hudleston, Chief Secretary.

Judicial Department.—No. 5 of 1877.

From the Government of Madras to the Secretary of State for India.

My Lord Marquis,

In the P.S. to our Despatch, dated 15th November 1876, No. 36, we mentioned that Mr. Thomas had just submitted a further letter of explanation which we would forward as soon as disposed of.

2. For this letter Mr. Thomas subsequently requested leave to substitute another which reached us on 12th January, and which we now transmit with the individual remarks of the Members of Government on it.

3. We see no reason to modify the decision in the case at which we originally arrived.

We have, &c.
(signed) *Buckingham and Chandos.*
Neville Chamberlain.
W. Robinson.
R. S. Ellis.

Fort St. George,
2 February 1877.

Government of Madras.—Judicial Department.—2nd February 1877, No. 285.

NEGAPATAM BURIAL CASE.

READ the following Papers:—

(No. 7.)

From *H. S. Thomas*, Esq., Acting District Magistrate of Tanjore, to the Chief Secretary to Government, Madras; dated Tanjore, 8th January 1877, No. 60.

In their Order, No. 1585, dated 2nd September 1876, passed in the matter of a Sanyasi exhumation, the Government has censured me; I desire, therefore, to submit the following explanation in the hope that the Government may be pleased to remove that censure.

2. As the merits of my conduct are necessarily dependent on a just appreciation of the merits of the case in which I acted, and in which I stand condemned, I have no means of making a defence except by a representation of the whole case; and though this will involve the discussion of points on which the Government have already passed a judgment, points which might at first sight seem to be extraneous to my individual defence as a servant, still, I trust, it will be borne in mind that no point bearing on the merits of the case can properly be germane to the action taken thereon, or, consequently, to the explanation of the springs of that action. I entertain the hope, therefore, that, viewed in this light, a fair discussion of all the merits of the matter may be held to be no impropriety on my part.

3. I cannot hope to induce the Government to come to new conclusions, unless I can show that old premises are erroneous. I may be allowed, therefore, to sift those premises.

4. The first premise is an important one; it is seemingly the basis of the Order, the point from which the string of all the conclusions depends. I make bold to say that it is an erroneous premise, and to the proof of this I apply myself. I refer to the opening words of the Government Order: "It is clear that the place of interment was, and had been, a customary burial place for Brahmin and Sudra Sanyasis." I shall hope to make it clear that it was not so, and that the parties in the case, and the Government petitioner in particular, must have very well known that it was nothing of the sort.

5. In the papers which are referred to at the head of the Government Order as read, there are petitions from Krishnasawmy Aiyar, Head Sheristadar of North Arcot, dated 5th and 11th July 1876. Subsequent to the issue of the order of censure, I have seen one of these in the public prints, and find that this supposed fact, that the place of interment was, and had been, a customary burial place, this point at issue, is therein stated in very round terms as an indisputable fact, is strengthened by repetition, built up with all details about caste divisions, supported by plan, based on local knowledge of the best description, and, finally, assumed and argued on as admitted. The petition's opening statement on this head is that the "banks of the above tank are, from time immemorial, used as the burial ground," &c. "Time immemorial." It is an impressive statement certainly;

tainly; but it happens that the tank itself does not date from "time immemorial," neither do its banks, for they are of the same age as itself, being formed of the soil thrown up in its excavation from rice fields. The history of the tank is still within the grasp of memory, and a grandson and great grandson of the projector are living clerks now. About A.D. 1760, one Akkammal, a female lady's doctor, performed such kindly offices for the Dutch ladies that the Dutch Government dug for her the tank in question, and its proper name is not Akkaraikulam but Akkammal Kulam or Akkammal's reservoir. Thus passes away the implied Hindu religious origin, and the asserted immemorial usage of the European dug tank.

6. But without being drawn by the petition into looking at all the four sides of the large* reservoir as if they were one and the same piece of ground, it is better that I should keep strictly to the real point at issue, the place where the Sanyasi was actually interred. The real question is, was "the place of interment" "a customary burial place"?

7. It has already been distinctly stated in Mr. Weld's original report that the place of interment was "entered in the Pymaish as a Brahmin's bathing place." This, coupled with the fact that there was not even an assertion that there had been a burial there for 30 years was, I thought, sufficient and conclusive. All, therefore, that I said on this head was "The joint magistrates' report on this point is clear, and runs as follows:" and I quoted his two† paragraphs, ending with the words "it is entered in the Pymaish as a Brahmin's bathing place." That the weight of the authority may be correctly appreciated, it seems necessary that I should explain, in some detail, the force of a Pymaish entry.

8. The Pymaish account is the Tamil, equivalent to the old Doomsday Book, with this difference, that in Tanjore the Pymaish account retains intact its original value. It was an account made here in Fasli 1238, answering to A.D. 1828-29, or 48 years ago. It was made on actual measurement, and all lands were entered consecutively, and each under a distinctive number; the entry describing minutely their dimensions, boundaries, and character. So minute was the Pymaish detail that even individual trees were ordinarily entered under their proper designations.

9. So particular was the Pymaish account in respect to the place of the Sanyasi's interment, that the extent is given as gulis $4\frac{44}{64}$‡, and the descriptive entry runs "the Brahmins' bathing place, steps, oratory, with a thatched roof, including the enclosure on the west." While it thus particularised down to the very nature of the roof, and was punctilious to a fraction, it cannot be possible that such a very prominent caste-fact as "a customary burial place" can have been omitted by oversight. On the contrary, it can only be held that the silence on this point is conclusive evidence against the place in question having been "a customary burial place."

‡ This means ·15 of an acre.

10. The men who prepared these Pymaish accounts were, in those days, invariably Brahmins; to this day the Curnums or village accountants are almost, without exception, Brahmins. A Brahmin would have been specially careful not to omit the mention of a burial ground, even if there were the remotest vestige of a single Brahmin burial in it; for if it is a Brahmin burial, it must be the burial of either a child or a Sanyasi, and if the latter, it is the burial of a God, a more than saint, a veritable God, and it is a place of worship. Such a fact no Brahmin could possibly overlook. Here, then, is still further security, extraordinary security, that 48 years ago no Brahmin burial was there traceable either by eye or tradition. Up to 1828, at least, it neither "was" nor "had been a customary burial place for Brahmin Sanyasis."

11. That it was a Sudra burial place can still less be contended, for if it were we should not find a Brahmin anxious to be buried in it. It would be defilement. Neither should we find Brahmins bathing there. It would be defilement. Brahmin bathings, it must be remembered, are not made for the simple enjoyment of cleanliness, but are exercises of a strictly religious character, purifying ablutions performed prior to devotion and eating.

12. This Pymaish account is then conclusive evidence of the best nature on two points, —one that 48 years ago there was no knowledge that the place then was, or formerly had been, a burial place, still less "a customary burial place;" and the other, that it was not to be a burial place thereafter, for it was authoritatively set apart for other purposes, to wit, the bathing of Brahmins.

13. In

* The waterspread of the reservoir is roughly 900 feet long by 500 feet broad, say, 450,000 square feet. The reservoir with its banks included, covers about 928,800 square feet, 21½ acres.

† 2. "Even if the place where the Sanyasi has been buried were clearly shown to be a burial ground, and even to be private property, it would be no reason for not issuing an order to remove the nuisance. Nuisances created by factories, &c., are, as a rule, on private property, but a man may not use even his private property to the detriment of the public health."

3. "There is, however, nothing to support the contention that the place is a burial ground, except the vague assertion that some one was buried near the place some 30 years ago, and that a Sudra Sanyasi was buried on another part of the tank bank three or four years ago; but if the authorities were careless, then it is no reason they should be so again; that fact that burials have been made round the tank at long intervals of time does not constitute the tank banks a burial ground. It is entered in the Pymaish as a Brahmin's bathing place."

13. In addition to all this, Mr. Weld gave me the assurance that, in point of fact, the spot had not been diverted from its proper use as a bathing place, that for 30 years, at least, it was known that there had been no burial there. I think it must be admitted that the evidence against its being "a customary burial place" was, as I have said, conclusive.

14. While Mr. Weld gave me this negative assurance, that for at least 30 years there had *not* been a burial in the spot in question, he made no admission that during the interval between the preparation of the Pymaish account and 30 years ago there *had* been a burial in that spot. The distinction should be carefully borne in mind. Mr. Weld's words were: "There is, however, nothing to support the contention that the place is a burial ground, except the vague assertion that some one was buried near the place some 30 years ago." "*Near the place*," it will be observed, not in the place; and I now find that the burial referred to was made in a perfectly distinct place, not "*the place of interment*," not Pymaish No. 297, but Pymaish No. 295, not in "the Brahmin's bathing place," but in a piece of private property.

15. To arrive at the truth in this matter, I must be allowed to keep strictly to the point at issue, and that point is "*the place of interment*," that and no other. The petitioner says it was a time-immemorial-used burial ground. I say that, on the contrary, it was a public Brahmins' bathing place, in which a burial would be the last thing permissible.

16. Pymaish numbers are distinct plots. They are called "numbers" because each distinct entry has its individual consecutive number, and by its number it is quoted and known and found in the account of the lands of that village; so that Pymaish No. 297 or 295 means, in simple English, lot No. 297 or 295 of that village.

17. Now, if 18 lots or plots of land were allotted in England, and utilised for various purposes, such, for instance, as a drinking reservoir, a theatre, and a church with churchyard, and so forth, would it be a fair deduction that the pantomine might be played in the church during service, or an interment made by the reservoir? Thus shown, the absurdity is apparent and preposterous. This, however, is just what the petitioner has done, and has claimed to have done rightly.

18. He, a Huzur Sheristadar, has treated all the 18 Pymaish numbers with which Akkammal reservoir is surrounded as if they were one and the same, as if they had no separate existence at all; has, as it suited him, taken the incidents of one, a private plot holding the remains of its owner, and applied these incidents to another, a public place, a place that had been explicitly set apart for a special purpose, Brahmins' bathing.

19. With equal truth and justice might he treat the rich sugar-cane of one Pymaish number and of one ryot as if it were the property of an adjoining possessor of another Pymaish number, and allow him to enjoy it. Does he deal thus promiscuously with Pymaish numbers when exercising his function as a Huzur Sheristadar? Most assuredly never.

20. With equal truth and justice might the mercantile premises of Messrs. Franck & Co. and the Banqueting Hall of the Governors of this Presidency be lumped together as if they were one and the same Pymaish number, and the attributes of one applied to the other, and that for the single reason that they are both on the sides of the Mount Road.

21. I trust to be pardoned the use of such startling parallels, because equally startling to me, as a revenue officer, is the spectacle of the first revenue subordinate of a district gravely asking the Government to believe a line of argument based on a complete ignoring of distinctive rights in separate holdings, and special revenue entry of such rights. Whether the plan which he has put in is equally promiscuous I am unable to say, as I am under the disadvantage of not having seen it. I annex in the margin, however, the Pymaish particulars of the 18 separate holdings of which the banks of the Akkammal reservoir are composed, and of which plot No. 297 is the place of interment,—the place at issue. The petitioner, however, speaks of them as if they were all one vast burial ground.

No.	Pymaish Designation.
283.	Newly enclosed for flower garden of Saravana Chetti.
284.	Path.
285.	Flower garden of Velipalayam Siva Temple.
287.	Flower garden of Soundarajaswami Temple.
289.	Path.
290.	Flower garden of Kristnaswami Temple.
291.	Dry (*i.e.*, unirrigated) Government waste land.
292.	Path.
293.	Government dry cultivable.
294.	Flower garden.
295.	Government dry cultivable waste.
296.	Flower garden of Tuesday Temple.
297.	Brahmin bathing place.
298.	Lane.
299.	Way to north bathing place.
300.	Flower garden of Sattaiyappar Temple.
301.	Flower garden of Soundarajaperumal's Temple.
302.	Flower garden of Neelayataksheamman Temple.

22. This Pymaish account, which shows that round this Akkammal reservoir there are 18 separate holdings, three Government property, nine private property, and six public property, set apart each for a specified purpose, this same Pymaish account is well known to every revenue officer; it is relied on by every tahsildar, referred to by every revenue inspector, conformed to by every petty village accountant on 6 rupees a month; nay more, every intelligent ryot or landholder is thoroughly well aware that it is the basis of the security and identification of separate holdings. Is it credible that of all people in the world, the highly-paid head native revenue subordinate of a district alone knew nothing whatever of the existence of such an account? His letter

letter ignores it. Or is it credible that knowing of it, it never occurred to him to examine it, or to ask a question about the tenure of the land in which he meant to bury his father?

23. But even after allowing such an impossible possibility, his own admissions, that he is " a native of Negapatam, that he has a house there, and that the whole of his family live in and about that place, that he himself had various appointments under Government in that town :" these present fresh difficulties to credence. I note also the intimate knowledge he claims to have about the said Akkammal's reservoir, and lastly, I add thereto the nature of the buildings on the spot,* and ask, Did it *look* like a burial ground, or was it an obvious bathing place? Is it credible that all this personal, family, and official residence in the town, aided by the features of the spot, gave petitioner no real knowledge about the chief and most frequented reservoir, of which he himself professes to have such a thorough and particular knowledge?

Paragraph 2 of his petition.

Paragraphs 5, 6, 7, of his petition.

24. I found, and still find, it hard to believe both these things; firstly, that, though his avocation was one which involved a special responsibility for, and constant conservancy with, revenue entries of holdings, nevertheless it never once occurred to him to make an inquiry about the tenure of the land in which he meant to bury his father; secondly, that all his local knowledge had left his mind a perfect blank wholly unimpressed with the daily blatant fact that the part he selected was a much frequented Brahmin bathing place.

25. Nay more, is it credible, thirdly, that, whatever might be his simplicity in these matters, it was no way disturbed when he found the chief revenue officers and the municipal vice-president, all in extreme opposition to his claims. Even if he were so very very simple, that at any rate should have sufficed to arouse him to an examination of the correctness of his position, and then at least he must have known that he had made a mistake. But then it was, after all this it was, that he still deliberately sat down to pen his petition to Government.

26. What makes it still more hard to believe that he was in ignorance of the Pymaish entry is the singular coincidence that a few weeks before his father's death, a relation of his applying to the municipality for a portion of this very Pymaish number, applied for it in strict consonance with the Pymaish entry; applied for it not as a place for burial but as a bathing place.

27. He would have it believed that it was a mere coincidence that the person who made that application was a relative of his; and he implies that he himself was miles away in the North Arcot District. I am told, however, that he went to Negapatam during his father's lifetime and after the father was already known to be on his death-bed, and on consultation held with the Tahsildar and his own relations, and after considerable misgivings, and in eventual reliance on the local influence of the Tahsildar, he pre-arranged this very matter himself, and returning to his district left his brother and his relatives to carry it into execution.

Paragraph 7 of his petition.

28. He would have it believed that the enclosing was the work of " the Brahmin community " generally, and that his brother only " contributed like others." If so, and if it were really for a public bathing place for Brahmins, why was it locked up, and how came his brother to keep the key? My information is, that his brother bore the whole expense and supervision of the work. The reason for locking up was obvious; it was to conceal the fact that a grave was being dug the while inside the locked enclosure.

Paragraph 7 of his petition.

29. For this concealment there were cogent caste reasons. It was, of course, well known that a burial in that spot would be specially offensive to, and would be opposed by, other sections of Brahmins, as I shall explain hereafter; it was desired, therefore, to keep the fact, as long as possible, from the knowledge of the Vaishnavite Brahmins.

Paragraphs 36 to 45, *infra*.

30. They, however, got wind of it, and remonstrated with the Tahsildar as he was accompanying the procession to the burial. They entreated him to prevent it. In this way did the Tahsildar Venkatrayalu Naidu, the petitioner's brother Seshanpaiyar, who is village munsiff, and their friends know again that what they were doing was offensive to a section of the Brahmin community.

31. But even accepting the petitioner's own representation in his 7th paragraph, that it was " the Brahmin community " that was adapting the place for worship, how can he explain his straightway doing an act which would defeat that very object—an act which to a portion " of the Brahmin community " would most markedly defile the place, and render purity and worship impossible? Will he plead ignorance of such consequences? No Shaivite can pretend to ignorance of the fact that a burial ground is defilement to a Vaishnavite.

32. Furthermore, the spot was obtained from the Municipality under the two distinct provisoes

* Gulis 35-56/64 out of Gulis 45-24/64 are occupied by buildings and steps, and only Gulis 9-32/64, or ·031 of an acre are left uncovered.

provisoes that it should be a bathing place, and that it should be open to the public, which, if it means anything, means that Vaishnavite Brahmins should not be excluded. There are Vaishnavites as well as Shaivites on the Municipal Commission, and they took care of this. With this distinct proviso staring him afresh in the face, the petitioner, nevertheless, put the place to an exactly opposite use.

33. Before the application for the bathing place was ever made, petitioner's father was on his death-bed and the inference is, that the whole matter was plotted from the very first.

34. Thus, I think, I have shown—

I. That the place of interment *was not* and *had not* been a customary burial place.
II. That the petitioner *well knew* it was not a customary burial place.

35. But I beg to submit a few words on the force of the special Aiyangar and general Vaishnavite objection to which the petitioner and his friends knew they were running counter when they stealthily dug a grave in the common bathing place.

36. The petitioner is a Shaivite. The religious views of the Shaivites and the Vaishnavites are in direct antagonism in the matter of Sanyasi burials, and of the Vaishnavites the Aiyanger section are in the strictest opposition.

37. To a Shaivite a Sanyasi is one who by holy living has attained divinity before death. He is a *presens Divus*, not a mere saint to be honoured, but a living deity upon earth, and as such he must be worshipped even in his lifetime; gifts must be given him, and adoring prostration of the eight members must be made by every true believer he meets; and when he dies, this worship should be continued over his grave. His tombstone should be a temple.

38. To a Vaishnavite, however, and especially to an Aiyangar, his burial place is as defiling as any other burial place. Their rule is "enter a Shaivite place of worship you must not, even though pursued by an elephant."

39. It follows that while a Shaivite can perform his ablutions and go to his worship of the dead Sanyasi, the Vaishnavite's ablutions are undone by the defilement of the burial place, and he must bathe afresh elsewhere before he can pass to his devotion and his meal. By a Vaishnavite, therefore, such a bathing place must be henceforward abandoned.

40. This very bathing place was, however, a specially important one to Vaishnavites, for once a year their God Perumal is brought there in solemn procession, carried very close by the place of interment, and there is no other road available, taken to the edge of the water, and set on the top of the steps under cover of a not inexpensive brick and mortar building. There he is worshipped by the Vaishnavite Brahmins, who there purify themselves before him, and eat before and worship him. In passage by, and in close proximity to, the defilement of a burial place all this would be impossible, for the Aiyangar chief priest of the principal Vishnu temple at Negapatam told him that it is forbidden for their God to go within 100 bow lengths (say 300 yards) of a burial place, because it would be defilement. He said they looked upon the burial in question as a studied pollution, and that it was a necessary consequence that the place of worship must be abandoned by Vaishnavites.

41. As a matter of fact, that was exactly what followed. As soon as the Aiyangars found that, in spite of their protest to the Tahsildar, the defilement of the spot had been accomplished by the Shaivites, they held a meeting in their temple, and came to the decision that it was necessary to abandon the annual procession and customary local worship of their God Perumal.

42. Furthermore, there is a holy fig or pepal tree (*Ficus religiosa*) on the spot enclosed for the burial of petitioner's father. To walk round and round such a tree is a devotional exercise common to Vaishnavites and Shaivites. The burial of a body close to it, almost touching it, introduced defilement to Vaishnavites, and consequently excluded them from the devotional use of the tree.

43. Thus the burial of a body in the place selected by the petitioner and his friends for the burial of his father necessarily involved the driving of the Vaishnavites from the common bathing place and the monopoly of it by Shaivites; necessarily involved the prevention of the annual Vaishnavite procession and worship of their God Perumal, substituting for it the temple and worship of the Sanyasi; necessarily involved also the driving of the Vaishnavites from the holy fig tree and the monopoly of it by the Shaivites.

44. All these necessary consequences must, as a matter of course, have been thoroughly foreseen by the petitioner, by the Tahsildar Venkatrayalu Naidu, by the Village Magistrate Seshappaiyar and their colleagues. It is obvious that it was on account of these very consequences that that particular place was selected, and the whole matter decided upon in conclave on the occasion of petitioner's earlier visit to Negapatam.

45. Furthermore, the Tahsildar was entreated about it on the very way to the burial, and told the entreater not to get himself a bad name, which from a native magistrate was

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in native eyes suggestive of possibly getting into trouble. Be that, however, as it may, it was a deliberate continuance by the Tahsildar in the gross injustice of utilising his influence as a magistrate for the subversion of the religious liberties of others. He was a friend to the deceased, and though a Vaishnavite, he was, from being a Vadagalai, no friend to the Tengalai Aiyangars, with whom he had had an old feud. Hence, he had no objection to joining their opponents.

46. The Aiyangars are at Negapatam numerically weak in comparison with the Shaivites; nevertheless, it was openly avowed that but for the presence of the Tahsildar magistrate, they would, at all risks, themselves have disinterred the Sanyasi.

47. These very strong and, among Hindus, well-known religious objections* to the burial in question, considered in connection with the Pymaish arguments,† indicate a thorough previous knowledge of the very grave nature of the wrong deliberately done.

* Paragraphs 35–46.
† Paragraphs 8–34, and specially 15–34.

48. My defence now carries me to the next point in the Government Order:—the point that "no steps had been taken by any authority to prohibit such burials, or to prohibit the use of the place as a place of burial under the powers of the municipal or any other law."

49. Now that the first premise has, I hope, been proved fallacious and removed, the answer here is simple. The municipality could not move under section 134, Act III. of 1871, because the place never was a public burial ground; all that the municipality could do, it did do. When it found the bathing place under its charge encroached on, it appealed to the magistrate.

50. The other places round the Akkammal reservoir, in which a few burials, twelve in six spots in all, have *ever* taken place are essentially private property. With them the municipality could not interfere.

51. Whether the magistracy could there interfere on sanitary grounds is an open question; for those burials are all much further removed from the reservoir, and the liability to percolation into the drinking water is by so much less. Moreover, they mostly took place at an age when sanitation was not regarded even by Europeans; at an age when the penal code was not.

52. Coming next to the contamination question, I may state briefly that while the Zillah surgeon mentioned the distance from the grave to the water, perhaps from pacing and memory, as 15 or 20 yards, and Mr. Weld gave it as within 50 feet, the exact measurement is now given me as 36 feet.

53. The Government Order relies on "a thick wall intervening." I do not like to seem to contradict, even in my own defence, but it will be scarcely doing justice to Mr. Weld and myself if I do not markedly state the fact that the wall was not thick and did not intervene. Why should the wall be thick when it had not any superstructure to support, and was not high? As walls go, it was as thin as it could be. Also it did not intervene, for the enclosed plan will show that a straight line drawn from the corpse to the reservoir will pass well wide of the lowest foundations of the wall.

54. The "large flight of steps intervening" were also not such as to prevent percolation, for they lack not abundant interstices.

55. The medical officer, who is the local sanitary adviser of the magistracy, was of opinion that "the percolation would be carried on under the most favourable conditions imaginable."

56. As it happened, Mr. Weld and I were both of the same opinion as the medical officer. But even if we had differed we should have had some hesitation, and incurred heavy responsibility in preferring our own unprofessional opinions. On a former occasion of very great emergency a sub-collector did so, because he had a Government Order also on his side. Yet how were he and I blamed for it?

Government Order, dated 10 August 1875, No. 286, Marine Department.

57. The Government says: "There can be no doubt also that any danger * * * might have been entirely prevented without the removal of the corpse from the grave." Had I known how this might be done, I should certainly have suggested it to the joint magistrate, Mr. Weld, for I was not then aware of the Vaishnavite objection. Even the petitioner admits that I discussed with him this last means of escaping the extreme measure of exhuming; and I might show that I did so in some detail, but that I fear to be wearisome; and I trust the Government will be satisfied that I did not fail carefully and thoughtfully to consider, to the best of my ability, how I could avoid pain to the relatives of the dead, while still doing my duty to the living.

His paragraph 12.

58. With reference to the Government objection to the use of "the utmost power of the law," it is necessary to bear in mind that Mr. Weld and I were both fully persuaded that there lay on us the heaviest responsibility for the removal of the threatening cause of death to thousands. The petitioner had plainly told us that he would rather go to any expense than do this. It followed that no amount of fine would gain the necessary end. Nothing short of the prospect of rigorous imprisonment with magisterial removal of the body would ensure the end which we thought imperative. This is the reason why, in

paragraph 4 of my letter to Mr. Weld, No. 1724, dated 5th May 1876, this view of the position is set forth as it is. It should also be remembered, as explained in my former report, that it was the petitioner himself who had deliberately forced us into a position from which there can be no other retreat.

59. The Government Order censures me for having "omitted to institute a close examination." I venture to submit that the investigation I made was as thorough as was possible. I wrote to the responsible officer, and he referred me to the best evidence, the Pymaish account.

60. This Pymaish account is the basis of all our revenue work. To this do we go back in all questions. By this do the civil courts decree. When Mr. Weld reported to me that the place claimed as a burial ground was entered in the Pymaish as a Brahmin's bathing place, I felt that he had given me the most reliable evidence producible. I was satisfied, and I submit rightly satisfied.

61. The letter which I wrote was also penned by my own hand, though the number of letters that go in and out of this office in a single year is over 40,000, and in that letter I omitted no possible subject for inquiry. I venture to submit that I went into the matter very thoroughly, very carefully, very patiently also, and as considerately as possible.

62. This I did, too, under no slight provocation. For petitioner's interview was by no means a seemly one, as he had boisterously threatened me with the punishment of Government, and a riot that should overpower the police.

63. The tone of my comments on the facts of the case has been condemned. If they were ill expressed I can only regret it. What are the exact phrases to which objection is taken I do not know, or perhaps I might be able to explain that they were only a true reflection of the state of the case. For instance, I must still be allowed to maintain that the numerously signed Negapatam petition was not a representative one; and the Government will now doubtless recognise that I had very good grounds for looking at the matter from a very different aspect from that taken by Government.

64. I would beg the Government also to remember that I was hurried in this matter by frequent telegrams from Government, so much so that I was driven to submitting my office draft avowedly incomplete as it was, just to satisfy the Government that I was making no avoidable delay. Had I been allowed to retain my office draft till the inquiry was completed, I should have been able to recast it in some details, perhaps in some that have displeased the Government; but the tone of the Government telegrams was very pressing, and I had no option but to send off the unfinished draft with the explanation I did.

65. The Government is pleased to pass on me the following censure:—"His continued severity, however, in sanctioning the steps taken with regard to the municipal officers when he was aware that the case was under appeal to Government, appears not only to have been harsh in itself, but unjustifiable and ill-judged in the extreme, and the Governor in Council regrets to be obliged to record his marked condemnation of it." I beg to submit for consideration that I did not anticipate that the Government would take the view it has; that I thought I was properly serving the Government by continuing to do what I thought my duty till I was ordered otherwise. I thought myself in duty bound to complete my executive action. I thought that the Government would not wish its executive to be paralysed by every petitioner, but rather that its officers should pursue their duty to it, trusting in its continued confidence, till it expressed disapproval.

66. When I first came to this litigious district I found my subordinates paralysed in just such a fashion.

67. As soon as a complainant or accused in a criminal case found that the evidence was going against him, off he ran to me with a petition for transfer of the case to some other sub-magistrate, on the ground that he could not expect justice from the sub-magistrate trying the case, as he was venal or biassed. The sub-magistrate knowing from the petitioner that such a petition for transfer had been made to me, and not liking to proceed with the case under such a cloud over himself, stayed his proceedings, awaiting my orders on the petition for transfer. The consequence was, that not only was the sub-magistrate paralysed for a time, and his influence weakened by any petitioner who was sufficiently bold and vituperative, but the other parties, generally a number of innocent people, falsely accused criminally in what was really a civil matter, were kept awaiting the order from my distant court. I consequently issued the circular order, noted* below, by which sub-magistrates were directed to go straight forwardly on with their duty,

* No. 20, dated 16 December 1874. "It has come to the knowledge of the district magistrate that parties expecting an unfavourable decision are constantly seeking a transfer of the case to another court, and that on hearing of such an application being made, sub-magistrates are in the habit of staying proceedings pending the order of the superior court. This is not right. The lower court should not be moved or stayed from the regular course of procedure by any such acts of the parties, and will be held responsible for improper delays thus allowed by it.

2. When the lower court itself sees cause for the transfer of the case from its own file, it will itself represent it to its superior court.

duty, quite irrespective of petitions to other courts, and this order I published in my District Gazette, so that petitioners might know that they must respect the local courts. I may add, that I also invariably refuse to transfer a case, because I would not cast such a slur on any court, except at its own request, and the petitioner's proper remedy is in appeal or review after the court of first instance has done with the case. This then being the rule which I laid down for my subordinates, it was also the rule which I had laid down for my own conduct as a subordinate to Government; and it never struck me that there was anything disrespectful, unjustifiable, or ill-judged in it; on the contrary, I thought I was thus best serving my masters and Queen.

68. But as the Government has markedly condemned such a principle of action as "unjustifiable and ill-judged in the extreme," my first impulse would be to obediently abandon it at once as regards myself, and, in every case of my knowing that a matter had been appealed to Government, to feel bound to stay my hand till I knew the Government pleasure. I am keenly sensible, too, of the heavy responsibility of not yielding this implicit and immediate obedience; and, perhaps, I should best serve myself by not incurring it. But I think I shall better serve the Government by seeking a re-consideration of the principle involved in this censure; and, as an old servant, I will, trusting in my past character, venture to take on me the risk of the submission; for if I did not, I fear that the administrative consequences would soon be very mischievous.

69. For instance, suppose I had felt tied down to await the orders of Government in the very case in point, the result would have been either a Vaishnavite riot for the removal of the body, or a body already so decomposed in the interim as to be past removal, and to be steadily percolating into the drinking water of the town. Cases in which delay would be similarly and even more fatal would be constantly occurring; and I think the Government would find it practically impossible to take the executive into its own hands.

70. But I await orders, and it is needless to say that whatever is the Government wish, that shall be loyally followed.

71. I come now to paragraph 5 of the Government Order. It has been duly reported in my letter, No. 3380, dated 15th September last, that the village munsiff was promptly reinstated, and the Government regrets communicated verbatim; that the bill for expenses was called for and passed by me, though it included even the cost of coming to see me on appeal, but that before it could be paid, the village munsiff bethought him that it would be degrading to receive it, and so the money remains unpaid. Having thus fully obeyed the orders of Government, even to the humbling of myself to being the mouthpiece of an apology to a village munsiff, who I felt all the while had been rightly dismissed for deceiving the Government officers, while it was his duty as a village magistrate to keep them informed; having thus fully obeyed, I think I may be allowed to submit the hope that, if the Government is now satisfied that he was a prominent actor in the plot laid by his brother the petitioner, and that his dismissal was therefore just, the Government will be pleased to order his re-dismissal.

72. The Government Order continues: "The municipal commissioners will, no doubt, act in regard to their dismissed servants in accordance with the spirit of this decision." This has been done. The law leaves dismissals and appointments to me as president; and though, in practice, I virtually leave them to the locally responsible vice-president, as his influence is dependent thereon, still as the Government wishes were concerned in this case, I took it on myself and ordered the re-appointments. The commissioners had nothing to do with it, and I judged it necessary not to consult them. Having here again gone out of my way to further the wishes of Government, perhaps the Government will be pleased to recognise that a municipality cannot work with wilfully disobedient servants. A valuable commissioner has since resigned in consequence.

73. The Government has desired (paragraph 7 of their Order) that this present matter may in no respect prejudice the case of the tahsildar. Now it has seen that it was the abuse of his authority that lay at the bottom of the whole matter, I hope it may think differently. But for his countenance it would never have been planned, but for his presence with the procession it could never have been carried out. He was the chief Native magistrate on the spot. To him the joint magistrate and I had a right to look for the maintenance of justice, yet he it is that set it aside. Not only did he err against sanitation in defence of which alone he should, I submit, have stayed the unsanitary burial, at least till the opinion of the joint magistrate or the municipality was known. He also deliberately set at naught the rights and religious feelings of the Vaishnavites. He also sanctioned by his presence an equally deliberate infringement of municipal authority over the land in question, which authority it was part of his duty as a magistrate to support. With reference to his case I beg a re-perusal of paragraphs 44, 45, 46 *supra*. If a tahsildar can thus set at naught sanitation, rights, religion, and authority, and yet be re instated, in the face of his superior, that superior is paralysed, at least as regards his taluq, and all like-minded tahsildars are emboldened, and superior authority weakened.

74. In that my joint magistrate and I only serve the Government; anything that weakens our authority weakens the authority of Government itself. On this ground it is

that I am emboldened to hope the Government will think proper in its own interests to repair the breach that has been made therein.

75. Having thus submitted my explanation to the Order of Government, I will turn but briefly to the petition, for it does not seem necessary, though easy, that I should weary the Government by tediously dissecting seriatim all the many erroneous statements thereof. It may suffice in reference to the petitioner's 19th paragraph that I should submit, for the consideration of Government, that my magisterial conduct was not "hasty," not "inconsiderate," not "illegal," not "irregular," not "insulting," not "contemptuous," not "trifling in a high-handed manner with the rights of a large section of the Hindu community," but properly protecting those very rights from being high-handedly overridden. It may be allowed me to solicit the attention of Government to the fact that the man who has charged me with all these things is also a servant of Government. Perhaps the Government may think it necessary to take such notice of his conduct as will prevent a recurrence of the like reckless accusations in him or others.

76. The injury which the petitioner has succeeded in doing to my public character has been made as public as possible. It has been blazoned in every newspaper in all the three Presidencies, and has thence found its way into the public prints in England. It was not by me nor with my knowledge that the Government Order which censured me was made public, nor was it with the consent of Government. I know that a copy of the order of censure was in circulation among the Natives even before it was communicated to me by Government; and I know also that, before any part of it was officially made known by me, it was widely known throughout Negapatam, where the petitioner's brother and friends reside.

77. While seeking removal of censure, I desire to return my grateful thanks for the encomium with which the Government has been pleased to accompany it. On my acknowledged past character I have presumed to rely somewhat, and the pains I have taken to clear it from the present stain will show the value which I attach to its maintenance. That value is high, because the maintenance of an administrator's character means a continuance of the confidence of Government, and the public assurance of that lies at the root of his powers of usefulness. In these circumstances I count confidently on a patient hearing, lengthy as my defence unavoidably is.

(No. 8.)

MINUTE by the Hon. Sir *W. Robinson*, C.S.I., dated 19th November 1876.

AFTER a lapse of four months from the date of Government Order disposing of the Sanyasi burial matter, Mr. Thomas submits an explanation, in which contemporaneous fact and afterthought have become strangely confused. There are no new facts to be gathered amongst the mass of assertion and conjecture, and little that is fresh in argument is put forward.

2. It is impossible to follow this paper, paragraph by paragraph; but I may observe that I do not accept Mr. Thomas's conjecture as to the comparatively recent origin of the tank in question, although the Government Order says nothing of "immemorial." Be this as it may, I see nothing in Mr. Thomas's argument which negatives the fact that the tank-bank *passim* has been customarily used for the special sepulture of persons of the position of the deceased, as occasion arose.

3. Mr. Thomas attaches importance to the silence of the Pymaish (survey measurement of 1828–29) accounts as to this occasional use of the public portions of the tank-bank for such burials. The silence of the Pymaish account on such matters is natural, and in this case it is general; for the same silence pervades all the eighteen items of public and private lots set out in Mr. Thomas's letter; while obvious facts as to the use of parts of the bank *passim* for the purpose of such special burials, negatives absolutely the inference sought to be established from this silence. The fact is, the object—a revenual one—of the Pymaish account was wholly unconnected with the record of such casual usages as the one before us; their record would be out of place, and I should hold that the fact that the spot in question is described as being a public Brahmin bathing place or ghaut, rather favours than otherwise the contention that the spot in question has been used, as occasion arose, for the sacred and customary purpose alleged. Be this as it may, judicial inquiry upon this point was boldly challenged at the time, and was improperly avoided by the local officers. Government must not now be asked to accept Mr. Thomas's *ex post facto* estimate of one item of evidence, which might have been put in and sifted at that inquiry, as sufficient explanation of grave neglect of the obvious duty of requiring careful judicial inquiry on this important point. But as an explanation of Mr. Thomas's ill-judged letter of the 5th May, the whole argument is out of place, for Mr. Thomas did not know of the Pymaish account until he received Mr. Weld's letter of the 8th idem. Neither of the inferences of paragraph 16, therefore, are sound. Silence of a revenue account does not qualify a practice which is proved *ab aliunde*; nor does the record that the spot in question

was

was used as a bathing place either alter, restrict, or interdict any local or occasional usage for other purposes; nor does such entry amount to a conveyance or setting apart of such spot for any special purpose to the exclusion of other usual purposes as Mr. Thomas seems to argue.

4. The argument that the subsequent perusal of this Pymaish account fulfilled that sufficient legal care and discretion which justified putting the utmost power of the law in force under the gravest coercion, simply shows that the executive Government is sometimes forced to repose confidence in indiscreet and hasty men.

5. I confess that I see no suitable name for the so-called "cogent caste reasons" put forward by Mr. Thomas, but *ad captandum* clap-trap; and we are asked to accept it without contemporary evidence or circumstantial confirmation of any kind whatever. Whatever the value of the claim put forward by Mr. Thomas in the Vaishnavite interest to equal participation in the use of the spot in question, the facts are that a Shaivite family got permission from the municipal commissioners—a mixed body—to erect a bathing place on the bank, which they shortly inclosed without remonstrance or complaint by the parties for whom the magistrate now appears as advocate. Shortly afterwards the public burial passed off in the presence of a Vaishnavite Tahsildar without petition or remonstrance from any contending party, and the continuous ceremonies of four or five days were proceeded with, without Vaishnavite complaint or interference; and to this day we have not in evidence, so far as I know, the scratch of a pen of complaint from that caste, as such, of caste grievance—unless the petition of a single Ayangar, presented without stamp, some five or six days after the burial and after Mr. Weld and Mr. Oliver had moved adversely to his rival caste man, is to be treated as such a remonstrance. But the abstract of the petition shows that no "cogent caste reasons," but sanitation only was the grievance of this one remonstrant. There is no contemporary evidence in support of the assertions contained in Mr. Thomas's letter against the tahsildar; and he is, after a lapse of six months' silence on the point, entitled, I think, to the benefit of any doubt even against the aspersions of the magistrate, uncorroborated as they are. The reasonable inference is that either the rival sect had no substantial interest in the matter such as Mr. Thomas now sets up on their behalf, or that they knew and acquiesced in the usage out of which this case has arisen. And I hold the latter by far the more probable inference. I see, therefore, no reason to doubt the soundness of the conclusion that the spot has been used for the purpose contended for as occasion arose from time to time with full caste approval.

6. I confess that I see no traces whatever in the contemporaneous circumstances of this case of "Special Ayangar and general Vaishnavite objection," alluded to by Mr. Thomas. His whole contention rests upon simple assertions of matter in respect to which there has been no evidence before us at any stage of the case, and in regard to which nothing occurs in either Mr. Thomas's or Mr. Weld's earlier letters. If, therefore, there be any present truth in the allegation, it seems to me to be *post facto* out-crop of that caste antagonism which is evoked by that grossly irregular conduct which the Government have already condemned. Be this as it may, the right and only reliable place for all this matter to appear was in the course of the investigation which was challenged at the time and refused; and Mr. Thomas is not the right person at this late period to find out for his own controversial purposes, caste rights and caste grievances which did not strike his clients at the proper time, and never have been officially advanced by them.

W. Robinson.

(No. 9.)

MINUTE by the Hon. *R. S. Ellis*, C.B., dated 28th November 1876.

I THINK Mr. Thomas should be informed that the Government have had under consideration his explanation, and that they see no reason to modify the Order against which Mr. Thomas appeals.

2. I have carefully read Mr. Thomas's explanation. It has in no respect altered the opinion which I have recorded on this case in my note of August last. I hold now, as I held then, that both Messrs. Thomas and Weld behaved in the matter of the exhumation of the body of a Brahmin Saniyasi (devotee) with the gravest indiscretion; that by their conduct they inflicted quite unnecessarily great pain and disgrace on a respectable Native family; and that their unreasonable and inconsiderate action in this case might have led to a most serious disturbance of the public peace.

3. It appears to me that, under these circumstances, it was the duty of the Government to repudiate the official acts of their servants, and to show their serious disapproval of their conduct.

4. The main acts which have been severely censured are, on the part of Mr. Weld,

first, the hasty order to exhume the body of a Saniyasi Brahmin who had been some days buried on the borders of a large tank, the borders of which had been customarily used for the burial of Saniyasis; and second, the aggravation of this intemperate and ill-judged order by the addition to it of the threat that unless the exhumation was speedily carried out by the relatives of the deceased, it would be done under the orders of the magistrate, and the body re-buried in a place generally known as the receptacle of the town-filth. So far as regards Mr. Weld.

5. Mr. Thomas has been severely censured, and, in my judgment, most deservedly, for not interposing his superior authority to prevent so grave a scandal as that which occurred at Negapatam.

6. The pretention advanced by Mr. Thomas that he has been condemned without being heard in defence, is unfounded. The petition presented by the inhabitants of Negapatam was referred to Mr. Thomas and Mr. Weld for their explanations, and it is on that petition and on those explanations that these officers have been judged and condemned.

7. In the explanation before Government, Mr. Thomas has devoted much time to showing that the place in which the Saniyasi was actually entombed was not a customary place of burial for Saniyasis; and to establish this point he describes the Pymaish or Native survey records in which the spot is entered as a Brahmin burial place. This is ingenious but beside the question, which was whether the *borders* of this tank had been customarily used for the burial of Saniyasis; and this Mr. Thomas is unable to deny. The Government never asserted that the actual site of the Sanyasi's interment had before been used for burying Saniyasis; what was asserted was that the tank-borders had been customarily so used, and that the municipality of Negapatam to whom, on the application to the Tanjore District of the municipal law, the tank had been transferred, had taken no steps to prohibit such burials. Mr. Thomas fails entirely to meet this statement. The entries in the Revenue survey accounts of portions of the borders of the tank as private property would not, according to Messrs. Thomas's and Weld's own views, have prevented the municipality prohibiting the use of private property to the injury of the public health if that idea had occurred to them.

8. The question as to how the interests of the Vaishnavite sect of Brahmins would be affected by the burial of a Shaivite Saniyasi at the Brahmin bathing places is a new issue raised by Mr. Thomas. But this like the whole of Mr. Thomas's explanation is beside the real question.

9. Both Messrs. Thomas and Weld have incurred the displeasure of Government by acting with imprudent harshness in exhuming the body of a man who was regarded with great reverence by the Hindu community, and Mr. Weld greatly aggravated his offence by adding a gross insult to this act of harshness. The grounds on which these officers affirmed that they had proceeded were distintly sanitary, and it is neither candid nor useful to attempt to shift these grounds. Mr. Thomas's explanation now under notice, submitted long after the event, contains an elaborate disquisition as to the legality of the course pursued by the relatives of the Brahmin Saniyasi in burying him on the spot in question. These arguments would have been appropriate if Mr. Thomas had been dealing *ab initio* with an application to permit the *burial* of the Saniyasi in this particular spot; and I think that there would, on this question of title and on sanitary grounds, have been cause to refuse such burial.

10. But Mr. Thomas had to deal with the fact that the burial had taken place. I maintain that the proper and the only reasonable course was to have provided at the expense of those who had buried him in a place which might endanger the public safety, such precautions as would have reduced this danger to a minimum. The enclosure of the ground occupied by the body by masonry would have effected this, and such prohibition as was necessary to prevent future burials near the tank could have been issued.

11. It seems to me that it was as unnecessary as it was unwise to shock the public feelings, and to afflict a respectable Native family, by an exhumation which must have appeared a wanton outrage. It was a happy accident that this outrage on Native feeling passed off peaceably. The natives of Tanjore are not a turbulent race, but in many parts of India the indiscretion of Messrs. Thomas and Weld would most probably have caused a most serious disturbance of the peace. Under the circumstances of the case, what was required was consideration for Native feeling and ordinary prudence. Both these officers failed entirely in these essential qualities, and Mr. Weld went out of his way to add insult to injury.

12. I can find nothing in Mr. Thomas's explanation which, in my judgment, alters the view which Government have taken of the conduct of these officers.

R. S. Ellis.

(No. 10.)

MINUTE by His Excellency the Commander in Chief, dated 22nd January 1877.

The Negapatam Saniyasi Burial Case.

THE able review by Mr. Ellis of Mr. Thomas's appeal leaves me little to say.

2. As pertinently stated by my honourable colleague, the question at issue was not as to dealing with an application to permit a burial, but whether burial having taken place did Mr. Weld act with propriety and consideration, and was Mr. Thomas right in affording him his full support? If they were right, Government decided the case wrongly, and it would be our duty to admit our error and make amends to those officers. If Government was right, they were justly reproved, and Mr. Thomas's appeal should be dismissed.

3. The lengthy and strained argument now addressed by Mr. Thomas in explanation and in justification of the course pursued by Mr. Weld and himself ought not, however, under any circumstances to be now allowed to have the weight evidently claimed for it by him in order to prejudice the previous decision by Government.

4. Government had to come to a decision upon the information afforded to them, and if anything was then wanting for the full elucidation of the case, the blame rested with Mr. Thomas himself.

5. As regards the remark made in paragraph 64 of Mr. Thomas's appeal that "he was hurried by frequent telegrams from Government, &c., &c.," there is, in reply, the fact that the Saniyasi died and was buried on the 30th April, and that it was only towards the end of July that Government succeeded in obtaining from Mr. Thomas sufficient information to enable them to come to a decision on the case.

6. If conduct such as that practised by Mr. Weld and supported and justified by Mr. Thomas is to find support at the hands of Government, I do not see how we can expect to continue to govern India.

Neville Chamberlain.

(No. 11.)

MINUTE by His Grace the President, dated 25th January 1877.

MR. THOMAS'S explanatory statement received during my absence at Delhi has been so clearly reviewed by Mr. Ellis and my honourable colleagues that I do not think it necessary to offer any remarks upon it, except that it abundantly confirms the statement of Government as to the custom of burials upon the tank-bund, ignores the threat issued by Weld which was, in effect, to have the body removed to the common dunghill of the town, and which notice, moreover, and threat, were so headed as to make it appear that this outrageous threat was authorised by the law.

2. The suggestion that the first explanations were hurried is disposed of by a comparison of the date of the burial, the petition order and reply, in which reply, dated 22nd July, there is no suggestion of want of time to reply to the reference of 20th June.

3. It should also be noted in passing that the measurements of the grave from the tank, as stated in Government Order were based on the information forwarded by the collector himself to Government.

Buckingham and Chandos.

(No. 12.)

ORDER thereon, 2nd February 1877, No. 285.

MR. THOMAS will be informed that the Governor in Council sees no reason to modify his original decision.

2. Ordered that the above papers be forwarded for the consideration of the Secretary of State with the following Despatch:—

(True Extract.)

(signed) *W. Hudleston,*
Chief Secretary.

LETTER from Mr. *Weld* to the Under Secretary of State for India; dated 20 February 1877.

4, Royal-terrace, Weymouth,
Sir, 20 February 1877.

I HAVE the honour to inform you that I was about to forward, through the Madras Government, an appeal against their order of the 2nd September 1876, censuring and punishing me for ordering the exhumation of a body which had been buried on the bank of the drinking water reservoir of the town of Negapatam, when I saw in the "Madras Mail" of the 20th ultimo a statement that the Secretary of State for India has called for the records of the case. If this is so it seems useless to send the appeal through the Madras Government, as it could not reach the Secretary of State till after the matter had been decided, but that it should be sent in direct for consideration with the records, if such a course is allowable.

I therefore have the honour to request that you will kindly inform me if the records have been sent for; and if so, if I may submit my Memorial direct, instead of through the Madras Government, for consideration with the records of the case.

I have, &c.
(signed) *M. R. Weld,*
Madras Civil Service.

LETTER from the Under Secretary of State for India to Mr. *Weld.*

Sir, India Office, 7 March 1877.

I AM directed by the Marquis of Salisbury to acknowledge the receipt of your letter of the 20th February, asking permission to submit directly a Memorial against the decision of the Government of Madras in your case, as you understand that the records have been called for.

2. In reply, I am directed to inform you that the complete correspondence has not yet been received from the Government of Madras, but that, as it is expected to arrive by an early mail, the Marquis of Salisbury will permit you to send in your Memorial direct.

I am, &c.
(signed) *Louis Mallet.*

LETTER from Mr. *Weld* to the Secretary of State for India.

83, Abingdon-road, Kensington, W.,
My Lord, 8 March 1877.

I HAVE the honour to forward my Memorial direct, as permitted in the letter of the India Office of the 7th instant.

I regret that I have no certified copies of the documents forming Appendices F., H., K., and M. I have put in uncertified copies, which I had intended to ask the Madras Government to have examined and certified; but as this cannot now be done, and as the originals will be before your Lordship, I trust that this will not stand in the way of the Memorial being considered.

I am also unable to put in a copy of the last report of the district magistrate of Tanjore to the Government of Madras, sent in since the promulgation of the Government Order; I trust that it will be amongst the correspondence now coming from Madras, as I am anxious that it should be considered with the other papers.

I have, &c.
The Secretary of State for India. (signed) *M. R. Weld.*

To the Right Honourable the Marquis of Salisbury, Secretary of State for India.

The humble Memorial of *Mathew Richard Weld*, of the Madras Civil Service.

Humbly sheweth,

That your Memorialist feels aggrieved by the enclosed order of the Madras Government, dated 2nd September 1876 (App. A.*), and desires to appeal against the same.

**See* page 10.

2. Your Memorialist was assistant, and acting head assistant, to the collector and magistrate of Tanjore during the last five years, and was put in charge of the sub-division of that district, on or about the 28th of April 1876, as a temporary measure, on the death of the late Mr. Cameron, of the Madras Civil Service, pending the appointment of his successor. Shortly after the arrival of your Memorialist at Negapatam (the head quarters of the sub-division), early on the morning of the 4th of May 1876, Mr. Oliver, the vice-president of the Negapatam municipality, called and informed him that some four days previously, the village magistrate of Negapatam, one Sheshappayyan, had caused the corpse of his father to be buried on the bank of the Akkarri Kulam (tank), the principal, indeed almost the only, source from which the inhabitants of Negapatam obtain their drinking water, and which has been duly set apart for that purpose by the municipality, so that its defilement is a penal offence. Your Memorialist went to the place with Mr. Oliver, and found that a small court yard had been built on the tank bank, on looking over the wall of which he saw the grave. It appeared to him that the body had been buried so close to the water that, as it decomposed, organic impurities from it must find their way into the water, the more readily as the soil consists almost entirely of sand. The marginal sketch shows the position of the grave, distant from the water about 36 feet. Between the courtyard and the tank lay a brick platform, composed of bricks laid flat upon the surface of the ground, and a flight of steps; the walls of the courtyard, of brick in mud, with foundations less deep than the grave, did not interpose between the body and the water, so that there was nothing in the way of percolation except the flight of steps, of brick, not by any means solidly built, and little calculated to resist it.

3. Not willing to rely solely on the unprofessional opinions of himself and the vice-president, your Memorialist consulted the district surgeon, requesting him to inspect the place and give his opinion; this he did, at first verbally, subsequently in writing, a copy of his written certificate is enclosed (App. B.†), it is in accordance with the opinion of your Memorialist.

†Surgeon Beech to the Sub-collector of Tanjore, 7 May 1876, No. 90. Page 14.

4. As your Memorialist thought over the matter during the morning, before going to office, it occurred to him that as the body bad been buried in salt (as he learnt) decomposition would be delayed (though not prevented), and there was, therefore, time to refer the matter for the orders of the district magistrate. He went to office resolved to do so. There he found awaiting him the Sheristedar of the North Arcot District, another son of the deceased, who prayed that the body might not be disturbed, and contended that the place where it had been buried was a customary burial place; but in support of this he could bring forward nothing but his own assertion that a corpse had been buried there some 30 years before. Your Memorialist informed him that he was about to refer the matter for the orders of the district magistrate, and that he had best apply to him.

5. That day (May 4th) your Memorialist wrote to the district magistrate (App. C.‡) reporting what had been done, and suggesting that an order be issued directing the removal of the corpse, and that the Government servants who had taken part in the objectionable burial should be punished. The principal of these were the tahsildar and subordinate magistrate (native) of Negapatam, who, instead of, as in duty bound, bringing the matter to notice, actually took part in the funeral, and the village magistrate, the son of the deceased. Next day the reply of the district magistrate arrived (App. D.§); he directed that the removal of the body should be ordered, if the place were not a customary burial ground, and that the Government servants concerned should be punished,

‡Mr. Welch to Mr. Thomas, 4 May 1877. *See* page 19.

Mr. Thomas to Mr. Weld, 5 May 1876. *See* page 19.

punished, and expressed some surprise that your Memorialist had not at once taken action. " If these be the circumstances," are his words, " I do not see why you should have delayed to do your duty where delay is dangerous." This letter, your Memorialist respectfully submits, amounts to a distinct order to have the corpse removed (unless he was prepared to report that the place was a customary burial ground, which he did not then and does not now believe to be the case), which order he was bound to obey, as the subordinate of the district magistrate.

6. In this letter the district magistrate also says, " I do not understand how the wall can have been built so close to the Akkarri Kulam without the knowledge of the municipality. The son (the North Arcot Sheristedar) says that it was " built with their sanction a month ago." This assertion of the Sheristedar is represented in his petition to Government; but the enclosed entry in the municipal proceedings book (App. E.*) shows that the persons who obtained license to build on the spot represented that they wished to build a covered ghât (flight of steps leading down to the water), and were permitted to do so on condition of their leaving it open to all who required to use it. Armed with this license, they built the wall, and under cover of the wall they dug the grave and got everything ready for the burial. There can be no reasonable doubt that they resorted to this deceit, because they were well aware that the Municipal Commissioners would not permit the burial of the body in that place.

*See paragraph 3 of Mr. Oliver's letter to President of Municipal Commission, dated 19 May 1876, on page 26.

7. After the receipt of the above-mentioned letter from the district magistrate, your Memorialist issued an order (App. F.†, translation of the same order), dated 6th May, directing the removal of the body within a week, and giving notice that if the order should not be obeyed the corpse would be removed and buried in a place called Hathaway's Park, or dealt with in any other manner which might be convenient. On the following day (7th May) the relatives removed the body and buried it in a garden, from the owner of which they obtained the site, not far from the first grave, but at a sufficient distance from the water.

† *See* page 22.

8. The time allowed in this Order was sufficient for the parties to appeal to Government against it, but no such appeal was made; and the North Arcot Sheristedar actually takes credit to himself for having dissuaded his friends from doing so. Why, it is difficult to understand.

9. To the above-mentioned letter of the district magistrate, your Memorialist replied (App..G.‡) that there was nothing to support the contention that the place was a customary burial-ground, except the bare assertion of the parties interested that a body had been buried there some 30 years before.

‡ Mr. Weld to Mr. Thomas, 8 May 1876. *See* page 23.

10. Subsequently the Madras Government received a petition from certain inhabitants of Negapatam, relatives and friends of the deceased (App. H.§), complaining against the action taken by your Memorialist. This was sent for report to the district magistrate of Tanjore, who called upon your Memorialist to explain why he had selected Hathaway's Park as a place of interment in preference to any other Hindu burial-ground authorised by the municipality. To this your Memorialist replied, on the 21st July (App. I.‖), explaining that he had mentioned Hathaway's Park, because the vice-president had informed him that it was the only waste land at his disposal in which the body could be buried. There is no such thing as a " Hindu burial-ground " in Negapatam, as Hindus do not bury, but burn their dead. In the case in question, the relatives wished to glorify the deceased as a Saniyasi (religious ascetic), and accordingly buried his remains instead of burning them.

§ Petition, dated 5 June, from S. Muthookisland, Iyer, and others. *See* page 3.

‖ Mr. Weld to Mr. Thomas, 21 July 1876. *See* page 29.

11. The North Arcot Sheristedar subsequently petitioned Government on the subject; his petition (App. K.¶) was not sent for report, and your Memorialist only knows of its contents from its having been published in the Madras papers after the promulgation of the Order appealed against.

¶ Petition from Kistnasamy Iyer, dated 11 July 1876. *See* page 5.

12. On the 22nd July, before the receipt of your Memorialist's letter of the 21st, the district magistrate sent in his report (App. L.**) on the petition of the inhabitants of Negapatam, in which he justified what had been done. On the 3rd August your Memorialist received a copy of a telegram from the Madras Government to the district magistrate, directing him to report what is meant by

**Mr. Thomas to the Government of Madras, 22 July 1876. *See* page 12.

by Hathaway's Park. Having by this time reverted to his post of head assistant, your Memorialist had returned to Tanjore, and was then very ill; this prevented his ascertaining and reporting accurately the details of the extent of Hathaway's Park, and the nature of the ground; but as it appeared that the Government demanded a report forthwith he wrote at once to the district magistrates (App. M.*) describing it, as well as he could, from memory. He has since ascertained that Mr. Oliver was right, that there is no other place to which he could have had the body removed had the relatives refused to obey his order, and had he then exhumed it; that the plot is over 30 acres in extent, and that, as he stated in that letter, though night-soil is buried in the south-east corner, the greater part is entirely free from anything that could be supposed to contaminate it. On the 15th August the district magistrate sent in a second report (App. N.†), enclosing your Memorialist's explanation.

*Mr. Weld to Mr. Thomas, 3 August 1876. *See* page 30.

†Mr. Thomas to Government of Madras, 15 August 1876. *See* page 15.

13. On the morning of the 5th September the district magistrate showed the Government Order to your Memorialist, who read it with the utmost astonishment and sorrow, as he was unaware that he had done anything deserving of censure, or that any such thing was pending. The Order of Government decides that the place where the body was buried is a customary burial ground, that your Memorialist acted hastily and without due inquiry, and that he wantonly insulted the feelings of the family of the deceased and outraged public decency by adding a certain threat to his order. This language shows that it has been assumed that the intimation that, if the order was not obeyed, your Memorialist would have the body removed to Hathaway's Park, is equivalent to a threat to bury it in the nightsoil. Against such an interpretation your Memorialist most emphatically protests, and submits that there is nothing to warrant it. He had not the slightest wish to hurt the feelings of anyone; on the contrary, he was anxious to do all he could to make his proceedings as little hurtful to their feelings as possible, consistently with obliging them to remove the body. He has always treated natives with whom he has been brought in contact with consideration and regard, and it is most painful to him to find himself accused of thus wantonly hurting the feelings of others from (as would appear from the Order of Government) a mere inhuman and diabolical love of inflicting pain. Had any such thing been the mainspring of his action, he could have gratified it by proceeding against the parties criminally under Section 277 of the Indian Penal Code, but he abstained from anything of this sort, and confined himself to enforcing the removal of the body.

14. Your Memorialist desires to draw attention to the following facts:—

(1.) Negapatam and the neighbourhood, in common with the rest of the Tanjore district, was at that time suffering from cholera. That epidemic, which has prevailed throughout the greater part of India since 1874, commenced there, and spread thence as from a centre. Government had repeatedly urged the Municipal Commissioners and the magistracy to use their utmost endeavours to check it. Your Memorialist was fully alive to the necessity of doing so, and his exertions to improve the sanitary state of his own division of the district (that of the head assistant) were mentioned with approval by the district magistrate in his report to the Board of Revenue. Your Memorialist had no personal interest in the matter, as his house was about two miles from the tank, and he did not use its water. He acted solely for the benefit of the people under his charge.

(2.) With reference to the assertion that the place is a customary burial-ground, it is not even pretended that anyone has been buried there for the last 30 years, and it is admitted that a Brahmin Saniyasi who died some 15 years ago, was buried in a different place. Supposing then that the assertion that a body was buried there some 30 years ago is true, does it follow that a burial there should be permitted now? Since that time attention has been directed to sanitation, the town has become a municipality, and the tank has been duly set apart as a drinking-water tank, so that its defilement is punishable under the Madras Towns Improvement Act.

(3.) The relations of the deceased showed by their conduct that they did not really believe that they had a right to bury the corpse in the place in question. They effected their object by deceitfully representing that they desired to erect a

covered ghât, and obtained a license to do so, under cover of which they were able to prepare the grave without their purpose being discovered.

(4.) Your Memorialist was moved to act by the vice-president of the municipality. The Sheristedar of North Arcot says in his petition that that officer promised, on the 4th of May, to see your Memorialist and waive all objections to the burial, but he never did so, and at all subsequent meetings he appeared to adhere to his original opinion.

(5.) Your Memorialist did not rely on his own opinion solely, but obtained the best he could for his guidance, that of the district surgeon; nor did he take any steps till he had obtained the instructions of the district magistrate, and he was, in fact, only obeying his superior in issuing the order to remove the body.

(6.) The body being buried in salt would not prevent, but only delay, decomposition. Indeed the salt would make matters worse in the end, and would assist the percolation of the impurities through the slight obstacle presented by the steps.

(7.) The intimation that the body might be buried in Hathaway Park does not amount to an indecent threat to bury it in the nightsoil pits. The friends of the deceased, in the hope of exciting indignation against your Memorialist, have represented the place as a sort of dung heap, where all the filth of the town is deposited, and their account appears to have been accepted as true by the Madras Government, but this is far from being so. The place is named after Mr. Hathaway, late of the Madras Civil Service, who, when sub-collector and joint magistrate of Tanjore and vice-president of the Negapatim municipality, obtained this piece of land for that body with the intention of making of it a public garden or park. It is over 30 acres in extent, and of considerable length from east to west. The surface being uneven, consisting of hills and hollows, and the soil of the hollows being impregnated with salt, owing to their being overflowed by the sea-water at high tide, and so unfit for cultivation, the town sweepings are used to fill them up to the level of the more elevated portions. The elevated portions, therefore, which occupy fully half the entire surface, have not even had sweepings thrown on them, and are free from anything that could be thought to contaminate them; one of these, some four or five acres in extent, lies in the south-west corner, surrounded on three sides by a valley, and having on the fourth the railway boundary hedge; this is entered in the old survey accounts (Painaish) part as a salt platform and part as a burning ground. It is no longer used for these purposes, as the salt depôt has been removed to another place, and the railway has cut it off from the main portion of the burning ground which is still in use. The nightsoil pits, which are in the south-east portion of the park, are very far away. This place would have afforded a perfectly unobjectionable site for the grave, and it is most unfair to your Memorialist to suppose that he would have passed over it to select a site in the objectionable south-east portion. As the vice-president told your Memorialist, there was no other Government waste land available to which your Memorialist could have had the body removed.

(8.) The order to remove the body was delivered to the village magistrate of Negapatam, one of the sons of the deceased, in the joint magistrates' court-room, he being then present with his pleaders, and had he or his friends felt aggrieved by the mention of Hathaway's Park in the order, there was nothing to prevent them saying so, and asking to have it omitted. That your Memorialist was far from wishing to insult or annoy them is shown by the fact that on their telling him that a week would be required for the performance of the ceremonies necessary on the removal of the body, he at once allowed that period in the order. They well knew that he wished to spare their feelings as much as possible, and at the conclusion of the proceedings, so far from complaining of anything in the order, they thanked him for the consideration shown them.

(9.) It was necessary that the parties concerned should clearly understand what would ensue if they did not themselves remove the body within the liberal time allowed, lest they should elect to endure punishment rather than obey, and perhaps frustrate, the object of your Memorialist by deferring the exhumation till it could be plausibly argued that decomposition must have already occurred, and that therefore it was useless to remove the body.

15. Your

15. Your Memorialist understands that the district magistrate has sent in a fresh report on the subject; he will request the Madras Government to attach a copy of it to this Memorial (as Appendix O.). He respectfully begs to draw attention to this and to Appendices L. and N., as they deal with the question most fully and ably, and show the opinions entertained on the subject by an experienced magistrate of about 22 years' service.

Mr. Thomas' letter to the Government of Madras, dated 22 July and 15 August 1876. *See* pages 12 and 1

16. The delay in submitting this Memorial is due to ill-health. The very day your Memorialist received the Government order, he became so ill that he was sent home on medical certificate as soon as it was safe to remove him, and he has since been far from well.

17. The stigma cast on the character of your Memorialist by the order of the Madras Government, against which he now appeals, is most serious, and is likely to affect the whole of his future career. He therefore humbly begs your Lordship to annul the said order so as to remove the stigma from his character.

For which act of justice your Memorialist, as in duty bound, will ever pray.

41, South-street, Dorchester, Dorset, (signed) *M. R. Weld.*
15 February 1877.

From the Under Secretary of State for India to Mr. *Weld.*

Sir, India Office, 3 May 1877.

The Secretary of State for India has had under his consideration in Council your letter dated the 8th of March, forwarding a Memorial addressed by you on the 15th of February to the Marquis of Salisbury, relative to the case of a Sanyasi who was exhumed by your orders at Negapatam. In reply, I am desired to inform you that Lord Salisbury has declined to interfere with the proceedings of the Madras Government with regard to this matter.

I am, &c.

To M. R. Weld, Esq. (signed) *George Hamilton.*

From Mr. *Thomas* to the Secretary of State for India.

Bella Luce, Guernsey, 13 April 1877.

The humble Memorial of Henry Sullivan Thomas, Esq., of the Madras Civil Service, at present acting collector and magistrate of Tanjore, and absent from duty on three months' privilege leave.

2. Your Memorialist, feeling aggrieved by an order of the Madras Government, No. 1585, dated 2nd September 1876, passed in the matter of a Sanyasi exhumation, thought it necessary to appeal to your Lordship, but, trusting in the strength of his case, he did not doubt of convincing the Madras Government; and, rather than appear in conflict with his immediate superiors, wished that they should first have the opportunity of themselves rectifying their mistake without any necessity for your Lordship's intervention. He therefore submitted his explanation, No. 60, dated 8th January 1877, in the first place to the Madras Government. Now that the Madras Government has declined to be moved thereby, he appeals to your Lordship.

3. When your Memorialist left his post in India on the 2nd March, he was not aware that the Madras Government had passed any order on his letter of explanation, No. 60, dated 8th January 1877, and was patiently awaiting its communication to him in the usual way; but no copy, nor even the purport of the order having been given him, he has been unable to appeal earlier, and even now he is in no fair position for appealing, as he only knows verbally, and that accidentally, of the bare existence of an unfavourable order, and is in complete ignorance of its details. If the Madras Government has set forth any fresh reasons for its order, your Memorialist begs to be allowed to see them in order that he may clear himself, as he is confident he can. He therefore prays that your Lordship will be pleased to grant him a copy of the order of the Madras Government, and to delay decision thereon till his appeal is with all dispatch submitted.

4. If nothing fresh is brought forward in the last order of the Madras Government, your Memorialist will not trouble your Lordship with any addition to his letter, No. 60, dated 8th January 1877; for though much, very much, might be added thereto were it necessary, he trusts it is a sufficient exposition of the case. Relying on your Lordship's sense of justice, your Memorialist, as in duty bound, will ever pray.

(signed) *H. Thomas.*

From the Under Secretary of State for India to Mr. *Thomas.*

Sir, India Office, 3 May 1877.

I AM directed to acknowledge the receipt of your Memorial, dated 13th April, in which you complain of the orders passed by the Government of Madras relative to the case of a Sanyasi who ws exhumed at Negapatam.

2. In reply, I am desired to inform you that the Marquis of Salisbury has declined to interfere with the proceedings of the Madras Government in regard to this matter.

3. I am to add that the submission of your Memorial direct to the Secretary of State, instead of through the Government to which you are subordinate, was irregular.

I am, &c.

To H. S. Thomas, Esq. (signed) *George Hamilton.*

EXTRACT from Minutes of a Meeting of the Council of India, held on Tuesday, the 24th April 1877:—

PRESENT:

THE MARQUIS OF SALISBURY, in the Chair.

Sir H. Rawlinson.	Sir R. Montgomery.
Mr. Cassels.	Sir W. Muir.
Hon. E. Drummond.	General Strachey.
Sir Barrow Ellis.	Sir A. Wilde.
Mr. R. S. Ellis.	Sir G. Wolseley, and
Sir F. Halliday.	Colonal Yule.
Sir H. Maine.	

The Despatch to Madras in the Judicial Department.—Case of Mr. Weld, which was laid before Council on the 17th instant, was read. After a long discussion, the Question being put, "To approve the said Draft," the same passed in the affirmative.

Ayes, 7.	Noes, 5.
Sir H. Rawlinson.	Sir B. Ellis.
Mr. R. S. Ellis.	Sir H. Maine.
Sir F. Halliday.	Mr. Cassels.
Sir R. Montgomery.	General Strachey.
Sir W. Muir.	Colonel Yule.
Sir A. Wilde.	
Sir G. Wolseley.	

Whereupon the Draft was approved accordingly.

To His Excellency the Most Noble the Governor in Council, Fort St. George.

(Judicial—No. 4.)

My Lord Duke, India Office, London, 26 April 1877.

Para. 1. THE Despatches of your Excellency in Council in the Financial Department, dated 28th September and 15th November, Nos. 28 and 36 of 1876, and

and in this department the 2nd of February, No. 5 of 1877, relative to the circumstances under which you have deemed it your duty to remove Mr. M. R. Weld, of the Civil Service, from his appointment of acting head assistant to the collector and magistrate of Tanjore, and to suspend him from all employment for a period of two months, have been considered by me in Council.

2. I have also received and considered in Council a Memorial addressed to me by Mr. Weld, who is now in England, protesting against the proceedings of your Excellency in Council in his case.

3. It appears that on the 30th April 1876 an aged Sanyasi died, and was, on the same day, in the presence of a very large concourse of people, buried on the north side of a tank, called Akkaraikulum, within the municipal limits of Negapatam.

4. On the 6th of May the acting joint magistrate, Mr. Weld, addressed an order to Seshappa Jyen, the village munsiff of Negapatam, a son of the deceased Sanyasi, directing him to exhume and remove his father's body, and informing him that if this order were not complied with on the 13th May, a prosecution, under Section 188 of the Penal Code, would be commenced against him. It was added, that the body would then be "removed on behalf of Government and buried in the place called Hathaway's Park." The village munsiff, Seshappa, was also dismissed from his post.

5. The justification alleged for these proceedings was, that the proximity of the spot in which the Sanyasi was buried to the tank would render the water liable to contamination, and that, therefore, on sanitary grounds it was necessary that the body should be at once removed.

6. The sanitary considerations appear to me exaggerated. The place of burial was from 15 to 20 yards distant from the tank, and was separated from it by a thick brick wall, and a large flight of steps; but it is not necessary to dwell upon this question; the real point for consideration is, whether Mr. Weld, when entertaining certain opinions on sanitary grounds, gave effect to those opinions in a proper and conciliatory manner.

7. I cannot think he did. He seems to me to have acted with great harshness. No attempt appears to have been made to induce the sons of the Sanyasi to render the grave impervious by the use of brick or concrete, or any other method. The exhumation of a body must always be repugnant to the religious feelings of natives, and, in the present case, Mr. Weld's order was addressed to the son of the deceased, a Brahmin Sanyasi, held in high respect for wisdom and piety, and was aggravated by the cruel threat that, if not removed by a certain date, the corpse would be taken up by direction of Government and buried in Hathaway's Park, a place in which rubbish was shot and nightsoil deposited.

8. It appears to me that in acting as he did, Mr. Weld altogether failed in that watchful regard for the religious feelings of the people which the English Government have traditionally exhibited, and which is one of the most essential qualifications of a civil servant.

9. I approve, then, of the proceedings of your Excellency in Council with respect to Mr. Weld; and I also concur in the condemnation of the tone of the comments of Mr. Thomas, the collector and magistrate of Tanjore, on the case. With respect to Mr. Weld, the censure with which his conduct has been visited will, probably, be sufficient to mark the views of your Government, and to impress on him the necessity of greater caution in the application of sanitary principles. Under these circumstances, your Grace in Council will, probably, be of opinion that the suspension of Mr. Weld from the exercise of magisterial functions need not be further continued.

I have, &c.
(signed) *Salisbury.*

DISSENT by MR. CASSELS.

24 April 1877.

I wish to place upon record my dissent from the despatch on this subject which, after much discussion, passed Council this day. It appears to me that the action of the Government of Madras in suspending Mr. Weld for two months, and in directing that the exercise of magisterial functions should be withheld from him, until powers should again be expressly conferred by order of Government, was not justified by the facts of the case; and that it is open to the charge of having been inspired by a wish to win popularity from the native population of the Presidency. I see reason to fear that the influence and authority of its own officers will be weakened by such action, and that the chasm which separates the European from the Native in India, will thereby be rendered even wider and deeper than it was before.

The Vice President of the Negapatam Municipality informed Mr. Weld that a burial had taken place in too close proximity to the tank from which the people of the town drew their drinking water. Mr. Weld visited the spot, and then consulted the surgeon in charge of the district as to the effect the decomposition of the body might be expected to have on the water, and the answer he received was that "organic and other decomposing matter must obtain entrance into the tank from the body." The distance of the grave from the tank is stated by Mr. Weld to be 36 feet. Mr. Weld, after receiving this confirmation of his fears, appealed to his superior officer the collector of the district, and he (Mr. Thomas) sanctioned his proposal that the body should be exhumed and removed to a greater distance from the tank. I fail to perceive how, with such advice and instructions before him, Mr. Weld could have done otherwise than insist upon the removal of the body.

It has been asserted that he acted harshly, and without due consideration for the feelings of the relations of the buried man. But I find no proof of this, and he affirms that the idea of wounding the feelings of the family never crossed his mind. The statements of Mr. Weld and of the relatives of the buried man are somewhat conflicting on several points of this part of the narrative, but I see no reason for disbelieving Mr. Weld and for placing reliance on the statement of the family. I cannot concur with those speakers in the discussion of to-day, who laid so much stress upon the necessity of respecting the feelings and religious customs of the people of India, and expressed alarm at the want of deference to those customs which they affirm to be manifested by English officers of the present time. If we ought to avoid all interference with the religious customs of the natives, how is it that we denounce, and to the best of our ability prevent, Suttee, which has been, held to be a custom sanctioned by their religion? Where are we to draw the line between interference and non-interference? Mr. Weld had to think of the living as well as of the dead; the town was under his care; it had been, it is stated, a centre from which a wide-spread attack of cholera had sprung, and Government had repeatedly urged the municipal authorities to use their utmost endeavours to check the disease; I confess that in my opinion his conduct in the matter deserved commendation and not punishment. The introduction of sanitary reform has never been welcomed, nay, it has almost invariably been opposed by the natives of India, and it seems most undesirable to cast discouragement upon officers who, to the best of their ability, are striving to introduce reforms of this kind.

The Government of Madras state that abundant proof has been produced to show that the place where the body was interred was a customary place of burial; but I find no such proof in the papers that were attached to the despatch which passed Council this day; on the contrary, Mr. Weld asserts that there is nothing to show that any burial had taken place in the locality for 30 years. The final question resolves itself into this: Are the religious prejudices of the natives to be respected at the expense of the life of the community? There can, I submit, be but one reply to this, and in accordance with it, Mr. Weld must be supported. It seems to me that it was absolutely necessary to remove the body, and by doing so to impress upon the people the pernicious nature of the practice of interring dead bodies within a few yards of a tank from which they were in the

the habit of drawing their drinking water. It may be added that the defilement of the tank was a penal offence.

It has been alleged that Mr. Weld gave additional offence by saying that, failing other arrangements, the body should be removed to Hathaway's Park; but it must be borne in mind that he was informed by Mr. Oliver, the Vice President of the Negapatam Municipality, that there was no other place to which he could have had the body removed.

I am, therefore, of opinion that, under all the circumstances of the case, Mr. Weld has been harshly treated, and that the action of the Government of Madras in suspending him from office is calculated to weaken everywhere the authority of their own officers, and to arrest the progress of sanitary reform in India.

I have, &c.
(signed) *Andrew Cassels.*

Dissent by Sir H. S. Maine.

From Despatch in Mr. Weld's case, passed by Council on Tuesday, 24th April 1877.

Mr. Weld, an acting Joint Magistrate in Southern India, issued an order about a year ago by which he directed that a body which had been surreptitiously buried on the margin of a tank near Negapatam should be exhumed, adding a statement of the consequences which would follow if these directions were disobeyed. The order was made under section 519 of the Code of Criminal Procedure, and there was nothing unusual in its form or *primâ facie* in its substance; but, for making it, Mr. Weld has been severely rebuked by the Madras Government, and was suspended from all public employment for two months.

There is a very heavy presumption against the justice of this censure and punishment. Negapatam is gloomily known to scientific medical authorities as a suspected cholera centre; that is, it is believed to be a place in which cholera is permanently present as an endemic, and from which it spreads from time to time, as an epidemic, over a great part of India, and possibly over a great part of the world. The tank in question is the principal, if not the only, source of drinking water to the population of Negapatam; and one fact among the very few established respecting the origin of cholera is, that it springs from the contamination of drinking water by decayed or degraded organic matter. Even, therefore, if we rate at the highest point of earnestness the desire of the dead man's relatives to bury him in this particular place, and even if we attach the utmost weight to their reluctance that the body should be removed, we seem at most to have a conflict between the interests of a large portion of mankind and the feelings of a single family of Hindoos, disposing of their dead in a manner never followed by the vast majority of their co-religionists.

An order for the exhumation of a dead body, so buried that it may defile a source of drinking water near a seed-bed of cholera, stands *primâ facie* in need of no defence, and the functionary who issued it may well have been actuated by a sense of duty more than usually high, and by a care for the interests confided to him more than ordinarily far-reaching and far-sighted. Very extraordinary circumstances of precipitation, or of violence, or of coarseness, must be proved and appealed to if the condemnation of such an act is to be justified. But, on the evidence before us, Mr. Weld seems to have fenced round his proceedings with an abundance, which might even be called a superfluity, of precautions. Within a few days after his assumption of his public functions, he was informed of the surreptitious burial by the Vice-Chairman of the Municipality, the "sanitary authority" of Negapatam. He convinced himself by ocular inspection that there was danger of defilement to the water of the tank; but, not satisfied with his own conclusion, he consulted the member of the official Medical Service who was the scientific expert of the district, and this gentleman confirmed his opinion. Still hesitating, he referred the case to the superior

above him, and received from that authority, not merely an expression of agreement with his view, but a strong remonstrance for not having sooner discharged an obvious duty. At last he issued the order; and the relatives of the deceased, who had already been informed that there would be time to appeal to higher authority against its being made, were now allowed the interval which they themselves desired for carrying it into effect.

The charge against Mr. Weld rests wholly on his having mentioned in his order a contingency which might not necessarily occur, and which, in point of fact, did not occur. After directing the relatives to remove the body, and pointing out the penalty which the Indian Penal Code imposed on disobedience, Mr. Weld, following, I presume, the ordinary form of orders like his, stated what would have to be done if, through the neglect of the relatives, the duty of removing the body should ultimately fall on the magistrate himself. He said that it would be buried in Hathaway's Park, an extensive piece of waste ground belonging to the Government. Hathaway's Park was in one respect the least appropriate, in another the most appropriate, place for the burial of a Hindoo, since in one part of it the refuse of the town was deposited, while in another part Hindoos, who follow the all but universal usage of burning, were accustomed to burn their dead. By a highly artificial construction of the language of his order, Mr. Weld has been taken to mean that he would bury the exhumed body in the first-mentioned portion of the waste ground. But the whole tenor of his proceedings seems to me to entitle him, if his language is the least doubtful, to the exactly opposite interpretation.

I do not believe that Mr. Weld, by his proceedings, shocked or outraged the religious feelings of any person whatsoever. The persons who effected the burial showed by the secrecy of their acts, and by the false pretences employed to cover them, that they were perfectly prepared for the consequences which would follow detection; and I largely share the suspicion that, if the authors of the surreptitious interment had not been deprived of their offices under Government, we should never have heard of the case at all. If, however, it were necessary to enter upon the question, it would be easy to show that hardly any considerable sanitary improvement can be carried out in India without in some degree offending the religious prepossessions of a community for almost all of whose practices, good or bad, there is a supposed religious sanction.

(signed) *H. S. Maine.*

27 April 1877.

I concur in the above dissent.

(signed) *Richard Strachey.*

7 May 1877.

DISSENT by SIR B. H. ELLIS.

I dissent from the tenour of the despatch which approves the proceedings of the Madras Government in the case of Mr. Weld.

2. Mr. Weld had unquestionably a difficult task to perform. On the one hand, no duty is more clearly laid down for the executive officers of the British Government than that they should respect the feelings, and even the prejudices, of the native population; on the other hand, the necessity for improved sanitation, and for the observance of precautions against the outbreak of epidemic disease, has been urgently pressed on the attention of all local authorities. I do not profess to decide whether, judging from the latter point of view, the urgency was such as to justify the extreme measures taken by Mr. Weld, at the risk of hurting the susceptibilities of a section of the native community of Negapatam. On the point whether the danger to the public from the possible contamination of the tank water and consequent spread of disease, was so clear as to justify the exhumation of the buried sanyási, the Madras Government must have better means of deciding than we have, and I do not presume to question their judgment.

3. But even if it be admitted that Messrs. Weld and Thomas were not justified

fied by the facts in the course they adopted, and that they also acted harshly in removing from their situations the Native Government servant for their share in the burial of the Sanyási, and for the deception by which it had been accomplished, I yet think that the circumstances did not warrant the severe punishment awarded to Mr. Weld.

4. I find that he acted throughout in accordance with the law, and with caution and deliberation. He justified himself by the formal opinion of his sanitary adviser; he referred for instructions to his immediate superior, and received from him an order on which he acted; he allowed the friends of the deceased ample time to carry out his injunction, or to appeal against it, if they felt disposed (which they did not); and, moreover, a sufficiently reasonable explanation has been given of the reference to Hathaway's Park, on which so much stress has been laid.

5. Mr. Weld, therefore, even if he be pronounced to have erred, erred from a too zealous desire to enforce sanitary precautions for the public benefit, and he certainly acted in good faith and with great caution. I must record my opinion that to visit so severely the action of an executive officer under such circumstances, tends to affect most seriously the efficiency of the administration; and it is especially from this consideration, and not merely in justice to Mr. Weld, that we ought to withhold our full approval of the proceedings of the Madras Government.

6. I think the proper course would have been to write to Madras and express the sympathy of the Secretary of State with the Madras Government in their anxiety to avoid wounding the feelings of any section of the native population, and his concurrence in the propriety of severely noticing any want of such consideration on the part of their officers, but I would have added, that the punishment awarded to Mr. Weld was, under the circumstances, unduly severe. A hope might have been then expressed that the censure already recorded would be considered sufficient, and that what has passed would not prevent Mr. Weld, on his return from leave, receiving such an appointment as his position in the service and his merits might otherwise entitle him to.

7. Had this been done, the past proceedings of the Madras Government would not have been unduly interfered with, but the Secretary of State would not have given the stamp of his approval to so severe a penalty as degradation and suspension from pay and allowances, which the Madras Government has in this case awarded to an officer who tried honestly to do his duty, and who acted, moreover, with care and caution, and with the sanction of his immediate superior, and in a manner which, though disapproved by the Madras Government and a majority of the Council here, is nevertheless approved by many authorities of eminence.

(signed) *B. H. Ellis.*

30 April 1877.

MINUTE by Mr. R. S. ELLIS, C. B.

I wish to make a few remarks on the case of Mr. Weld, who was temporarily suspended by the Madras Government. I desire to do this because I was a party to the order in question.

The exhumation of the body of a sanyasi (saint), held in great reverence by the Brahmins of Tanjore, had excited great indignation among his co-religionists, and if, as was asserted, there was no necessity for so unusual a proceeding, and if the order had been carried out with unusual harshness the magistrates concerned had committed an error of the most serious character. The Madras Government had therefore two questions to deal with in this case: 1. Was there such urgent necessity on sanitary grounds, as would justify the exhumation of the sanyasi? 2. Did Mr. Weld enforce his order with undue harshness?

After most careful inquiry and consideration the Madras Government decided, I still think rightly, that there was no urgent necessity for the exhumation.

The tank in question was not, as supposed, a reservoir of pure water for the

supply of the town. It was one of the ordinary tanks of an Indian town, from which hundreds not only take water for household purposes, but in which they bathe and wash their clothes, and which they defile in the many ways familiar to those who know Indian habits. It may easily be supposed in what an impure state such a tank would be. An isolated case of interment on its border could hardly add to its impurity. It was further ascertained that the body of this aged saint had been buried on the sloping border of the tank with unusual precautions. His grave was at a distance of 40 or 50 feet from the water's edge, the body had been surrounded with a mass of salt, and it was separated from the water by a brick wall and a flight of steps.

It was also in evidence that before the order of exhumation was enforced, the relatives of the deceased offered to take any further precautions, such as casing the grave with stone, pouring lime round the body, as might be considered necessary by the European officials. So that, the interment having taken place, matters might have been arranged in a manner which would completely obviate all risk to the public health.

This would have been reasonable, and the relatives of the deceased had a fair claim to this amount of consideration, for it was shown that the border of the tank had been used, at long intervals, as the recognised burial-place for this class of devotees. No effort had been made by the municipality to forbid such burials, so that the relatives of the deceased could hardly be charged with any wilful illegality in having publicly buried the sanyasi in the usual place.

The exhumation of a body, except for the purposes of justice, is always a serious matter, but in the present case more than usual care was necessary. The corpse was that of a well-known saint who shortly before his death entered the holiest order of ascetics, whose death and burial were events of great importance in the district. His funeral had been performed with more than usual ceremony, and in accordance with usage his resting place should have become a place of prayer and pious offerings. Under the circumstances nothing but the strongest sanitary necessity could justify the order of exhumation. As above stated, the Madras Government failed to perceive such necessity, and deemed it necessary to censure Messrs. Thomas and Weld for their want of consideration in a matter which was certain to affect painfully the religious feelings of the native community.

They had then to consider the manner in which the exhumation order had been carried out by Mr. Weld.

It appeared that Mr. Weld on first hearing that the saniyasi had been buried on the border of the tank, gave a hasty verbal order for his immediate exhumation, and dismissed the village magistrate (a son of the deceased saniyasi) for not having prevented the burial on the tank border.

Even after he had time for inquiry and reflection his conduct was unaccountably inconsiderate, for in issuing the formal written order of exhumation, he added the threat that if his order was not obeyed he would cause the body to be exhumed and placed in Hathaway's Park, a waste piece of land used as the place where the night-soil and rubbish of the town were thrown. These proceedings appeared to the Madras Government to be inexcusably harsh and inconsiderate.

Instead of doing all that was possible to mitigate the severity of the order of exhumation, Mr. Weld was violent and hasty, and used a threat which was a deliberate insult, not only to the relatives of the deceased, but to the whole Hindu community.

This conduct placed Mr. Weld in a different position from that of Mr. Thomas,* and the Madras Government thought it necessary to mark their displeasure by adding the punishment of a brief suspension to official censure.

2 May 1877. (signed) *R. S. Ellis.*

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* Mr. Thomas had nothing to do with the threat of Hathaway's Park.

Minute by the Marquis of Salisbury.

The Papers have left upon my mind a different impression of the case from that which they have left upon the minds of some of the members of Council; and as the questions at issue are not argued in the despatch, I think it will be better to put on record the reasons which in my view justify the course taken by the Government of Madras. There is a good deal of conflicting evidence as to the facts, but I state them as they appear to me, on reading the Papers, to have occurred.

There is a tank in the neighbourhood of the town of Negapatam, on the margin of which, for some generations back, Hindu saints have been buried, it being the practice not to burn the bodies of those who have attained to an extraordinary degree of sanctity, but to bury them by the side of tanks and rivers. The cases in which this honour is accorded are very rare, and therefore the number of such graves on the margin of this particular tank are few. Some such burials, however, have taken place in recent times, and one is spoken of which occurred only three or four years ago. No objection on the part of the authorities appears to have been made to the practice at that, or at any other time. Whether the interment was or was not technically illegal appears to be much disputed.

On the 30th of April last year, a Brahmin saint died at the age of eighty-five. One of his sons, who was a village magistrate in the neighbourhood, buried him the same day in the neighbourhood of the tank, in accordance with the custom above-mentioned. The funeral procession was accompanied with native music, and was attended by about 2,000 people, among them some of the Native municipal authorities, and the interment took place at four in the afternoon. It can hardly therefore be described surreptitious. Five days afterwards, Mr. Weld, the joint magistrate of Negapatam, having received information of what had taken place, sent for the son, dismissed him from his office, and (according to Mr. Weld's own statement to Mr. Oliver) threatened him that, unless the body was exhumed within three days, and buried somewhere else, it should be buried in Hathaway's Park. Hathaway's Park is a reclaimed swamp belonging to the municipality, where night-soil is buried, and rubbish is thrown. If I rightly understand Mr. Oliver's letter of the 8th of August, no part of this ground has been used as a place for the burning of the dead. Nor did Mr. Weld confine himself to threats. He gave a formal order to Mr. Oliver, Vice President of the Municipal Commission, that if the body was not removed within three days, the threat was to be carried out. At the same time, Mr. Weld dismissed two of the municipal officers who had been present at the funeral.

For these proceedings the Madras Government punished him. They also censured, without punishing, the Collector, Mr. Thomas, to whom Mr. Weld had on the first instance applied for instructions. The threat concerning Hathaway's Park was, however, not suggested in that application, so that Mr. Thomas was in no way responsible for it, and the facts of the case were not quite adequately represented to him. He only therefore incurred blame for having somewhat hastily sanctioned the harsh proceeding of dismissing the officers.

Mr. Weld undoubtedly was of opinion that the burial of the saint on the margin of the tank was likely to contaminate the water which the people of Negapatam used for drinking; and in this view he was supported by the opinion of Mr. Oliver and Dr. Beech, the local officer of health. The Government of Madras do not attach much importance to this danger, and if it is safe to form a judgment on such a point at this distance, I am disposed to agree with them. The grave was about 50 feet from the water; it was nine feet deep; it was situated on a slope which slanted away from the tank; and a flight of stone steps intervened between it and the water. It is also worth remembering that, guided apparently by some sacred rule of their own, the relatives of the deceased had filled his grave with nearly a quarter of a ton of salt. Moreover, the water in the tank was not pure, as we understand purity. The whole town of Negapatam were in the habit of bathing there, and, I believe of washing their clothes. Under these circumstances I cannot rate the danger of contamination very high.

But it is not necessary to insist upon this point. Mr. Weld is to be praised rather than blamed for having held very high sanitary doctrine. But the course

which he took was not necessary to his doctrine, however high. The sons of the deceased offered to bear any expense necessary for preventing contamination, rather than to suffer the disgrace and, according to their views, the sacrilege of exhuming their father's body.

The grave might, without the slightest difficulty, have been lined with masonry or concrete at the cost of the family, and all conceivable danger to the health of the inhabitants would have been at an end.

The heavy punishment inflicted, and the dishonouring threat uttered and half-executed by Mr. Weld, were not therefore necessary to the accomplishment of his sanitary objects. He states, indeed, that when he gave the order about burial in Hathaway's Park, he had in his mind a part of Hathaway's Park on which no night-soil or refuse had been thrown. The explanation is hardly an extenuation of his conduct; it implies that the necessity of respecting the religious feelings of the natives was so little present to his mind that the deadly insult which his words, according to their natural construction, were calculated to inflict, never occurred to him as a danger that was to be avoided.

The desire to amend the habits of the natives of India, in accordance with the latest results of European civilization, is, in the abstract, highly to be commended; but the object is sometimes pursued with a dangerous zeal. Without in the least depreciating the value of sanitary reforms, there are other considerations which it is even more urgent to remember, both for the welfare of the people themselves, and in the interests of our rule in India.

I cannot better express the nature of the apprehensions with which these occurrences inspire me than by quoting from the comments of two members of the Council of Madras, who know India well.

Mr. Ellis says:

> "It was a happy accident that this outrage on native feeling passed off "peaceably. The natives of Tanjore are not a turbulent race, but in many "parts of India the indiscretion of Messrs. Thomas and Weld would pro- "bably have caused a most serious disturbance of the peace."

Sir Neville Chamberlain says:

> "If conduct such as that practised by Mr. Weld, and supported by Mr. "Thomas, is to find support at the hands of Government, I do not see "how we can expect to continue to govern India."

4 May 1877. (signed) *Salisbury.*

EAST INDIA (MR. WELD).

COPY of CORRESPONDENCE and PAPERS relating to the Suspension, in April 1876, of Mr. *Weld*, of the Madras Civil Service, for, as Magistrate of *Negapatam*, Tanjore District, causing the EXHUMATION of a BODY of a SANIYASI buried on the Banks of Drinking Water Reservoir at that Place, and all OPINIONS or DISSENTS of the Members of the Madras Council and Indian Council, if any.

(*Mr. Percy Wyndham.*)

Ordered, by The House of Commons, *to be Printed*,
14 *June* 1877.

[*Price* 8 *d.*]

EAST INDIA (LOANS RAISED IN ENGLAND).

32. RETURN of all LOANS raised in *England* under the Provisions of any Acts of Parliament, chargeable on the REVENUES of *India*, outstanding at the Commencement of the Half-year ending on the 30th September 1876, with the Rates of Interest payable thereon, and the Date of the Termination of each Loan, the Debt incurred during the Half-year, the Moneys raised thereby during the Half-year, the Loans paid off or discharged during the Half-year, and the Loans outstanding at the Close of the Half-year, stating, so far as the public convenience will allow, the purpose or service for which Moneys have been raised during the Half-year.

DESCRIPTION OF LOAN.	RATE OF INTEREST.	DATE OF TERMINATION OF LOAN.	Amount of Debt outstanding on 1 April 1876.	Amount of Debt incurred during the Half-year ended 30 September 1876.	*Moneys raised during the Half-year ended 30 September 1876.	Amount of Debt paid off or discharged during the Half-year ended 30 September 1876.	Amount of Debt outstanding on 30 September 1876.
LOANS BEARING INTEREST.			£.	£.	£.	£.	£.
East India Bonds	4 per cent.	At any time after 12 calendar months' notice.	3,996,700	500,000	*500,000*	500,000	3,996,700
India Debentures	4 per cent.	16th August 1878	7,000,000	100,000	*100,904*	- -	7,100,000
India 5 per Cent. Stock	5 per cent.	Not redeemable until 5th July 1880, but after that day upon one year's notice by the Secretary of State for India in Council.	17,200,000.	- -	- -	- -	17,200,000
India 4 per Cent. Stock	4 per cent.	Not redeemable until 10th October 1888, but after that day upon one year's notice by the Secretary of State for India in Council.	21,579,416	4,000,000	*4,086,231*	- -	25,579,416
		TOTAL DEBT in ENGLAND, bearing Interest £.	49,776,116.	4,600,000	- -	500,000	53,876,116
LOANS NOT BEARING INTEREST.							
East India Bonds	- - -	On presentation of the Bonds	20,917	- -	- -	- -	20,917
		TOTAL DEBT in ENGLAND, not bearing Interest £.	20,917	- -	- -	- -	20,917
		TOTAL DEBT in ENGLAND £.	49,797,033	- -	- -	- -	53,897,033

* The state of the exchanges between England and India and the requirements of the Indian Government rendered it necessary to raise these sums.

T. W. Keith, Accountant.

India Office,
2 October 1876.

George Hamilton,
Under Secretary of State.

EAST INDIA (LOANS RAISED IN ENGLAND).

RETURN of all LOANS raised in *England* under the Provisions of any Acts of Parliament, chargeable on the REVENUES of *India*, outstanding at the Commencement of the Half-year ending on the 30th September 1876, with the Rates of Interest payable thereon, and the Date of the Termination of each Loan, the Debt incurred during the Half-year, the Moneys raised thereby during the Half-year, the Loans paid off or discharged during the Half-year, and the Loans outstanding at the Close of the Half-year, stating, so far as the public convenience will allow, the purpose or service for which Moneys have been raised during the Half-year.

(Presented pursuant to Acts 36 *Vict. c.* 32, *and* 37 *Vict. c.* 3.)

Ordered, by The House of Commons, *to be Printed,*
14 *February* 1877.

EAST INDIA (LOANS RAISED IN ENGLAND).

154. RETURN of all LOANS raised in *England* under the Provisions of any Acts of Parliament, chargeable on the REVENUES of *India*, outstanding at the Commencement of the Half-year ending on the 31st March 1877, with the Rates of Interest payable thereon, and the Date of the Termination of each Loan, the Debt incurred during the Half-year, the Moneys raised thereby during the Half-year, the Loans paid off or discharged during the Half-year, and the Loans outstanding at the Close of the Half-year, stating, so far as the public convenience will allow, the Purpose or Service for which Moneys have been raised during the Half-year.

DESCRIPTION OF LOAN.	RATE OF INTEREST.	DATE OF TERMINATION OF LOAN.	Amount of Debt outstanding on 1 October 1876.	Amount of Debt incurred during the Half-year ended 31 March 1877.	Moneys raised during the Half-year ended 31 March 1877.	Amount of Debt paid off or discharged during the Half-year ended 31 March 1877.	Amount of Debt outstanding on 31 March 1877.
LOANS BEARING INTEREST.			£.	£.	£.	£.	£.
East India Bonds	4 per cent.	At any time after 12 calendar months' notice.	3,996,700	1,500,000	*1,529,625	- -	5,496,700
India Debentures	4 per cent.	16th August 1878	7,100,000	- -	- -	- -	7,100,000
India 5 per Cent. Stock	5 per cent.	Not redeemable until 5th July 1880, but after that day upon one year's notice by the Secretary of State for India in Council.	17,200,000	- -	- -	- -	17,200,000
India 4 per Cent. Stock	4 per cent.	Not redeemable until 10th October 1888, but after that day upon one year's notice by the Secretary of State for India in Council.	25,579,416	- -	- -	- -	25,579,416
		TOTAL DEBT in ENGLAND, bearing Interest £.	53,876,116	1,500,000	- -	- -	55,376,116
LOANS NOT BEARING INTEREST.							
East India Bonds	- - -	On presentation of the Bonds	20,917	- -	- -	- -	20,917
		TOTAL DEBT in ENGLAND, not bearing Interest £.	20,917	- -	- -	- -	20,917
		TOTAL DEBT in ENGLAND £.	53,897,033	- -	- -	- -	55,397,033

* Towards meeting the Expenditure incurred in relief of the Famine in Madras and Bombay.

T. W. Keith, Accountant.

India Office,
2 April 1877.

George Hamilton,
Under Secretary of State.

EAST INDIA (LOANS RAISED IN ENGLAND).

RETURN of all LOANS raised in *England* under the Provisions of any Acts of Parliament, chargeable on the REVENUES of *India*, outstanding at the Commencement of the Half-year ending on the 31st March 1877, with the Rates of Interest payable thereon, and the Date of the Termination of each Loan, the Debt incurred during the Half-year, the Moneys raised thereby during the Half-year, the Loans paid off or discharged during the Half-year, and the Loans outstanding at the Close of the Half-year, stating, so far as the public convenience will allow, the Purpose or Service for which Moneys have been raised during the Half-year.

(Presented pursuant to Acts 36 Vict. c. 32, and 37 Vict. c. 3.)

Ordered, by The House of Commons, *to be Printed,*
12 *April* 1877.

EAST INDIA (LOANS RAISED IN INDIA).

RETURN of all LOANS raised in *India* chargeable on the REVENUES of *India*, outstanding at the Commencement of the Half-year ending on the 30th September 1876, with the Rates of Interest payable thereon, and the Date of the Termination of each Loan, the Debt incurred during the Half-year, the Moneys raised thereby during the Half-year, the Loans paid off or discharged during the Half-year, and the Loans outstanding at the Close of the Half-year, stating, so far as the Public Convenience will allow, the Purpose or Service for which Moneys have been raised during the Half-year.

DESCRIPTION OF LOAN.	RATE OF INTEREST.	DATE OF TERMINATION OF LOAN.	Amount of Debt outstanding on 1 April 1876.	Amount of Debt incurred during the Half-year ended 30 September 1876.	Moneys raised during the Half-year ended 30 September 1876.	TOTAL.	Amount of Debt paid off or discharged during the Half-year ended 30 September 1876.	Amount of Debt outstanding on 30 September 1876.
LOANS BEARING INTEREST.			£.	£.	£.	£.	£.	£.
5½ per Cent. Loan of 1859–60	5½ per cent.	Not before 1 May 1879	10,201,670	-	-	10,201,670	-	10,201,670
4½ per Cent. Transfer Loan of 1870	4½ per cent.	Not before 15 July 1885	1,835,790	-	-	1,835,790	-	1,835,790
4½ per Cent. Transfer Loan of 1871	4½ per cent.	Not before 4 July 1881; falls to 4 per cent. on that date.	221,900	-	-	221,900	-	221,900
4½ per Cent. Transfer Loan of 1872	4½ per cent.	Not before 16 January 1882; falls to 4 per cent. on 16 January 1879.	13,079,130	850	-	13,079,980	-	13,079,980
4 per Cent. Loan of 1824–25	4 per cent.	3 months after notice by Government	31,808	-	-	31,808	-	31,808
4 per Cent. Loan of 1828–29	4 per cent.	ditto	10,730	-	-	10,730	331	10,399
4 per Cent. Loan of 1832–33	4 per cent.	ditto	1,250,006	-	-	1,250 006	20,693	1,229,313
4 per Cent. Loan of 1835–36	4 per cent.	ditto	3,144,790	-	-	3,144,790	26,870	3,117,920
4 per Cent. Loan of 1842–43	4 per cent.	ditto	14,472,630	23,200	-	14,495,830	28 520	14,467,310
4 per Cent. Loan of 1854–55	4 per cent.	ditto	6,613,720	-	-	6,613,720	55,300	6,558,420
4 per Cent. Transfer Loan of 1 May 1865	4 per cent.	ditto	17,300,752	133,060	*10*	17,433,812	8,370	17,425,442
4 per Cent. Transfer Loan of 22 April 1854	4 per cent.	15 months after notice by Government	*1,238,439	-	-	1,238,439	7,773	*1,230,666
3½ per Cent. Loan of 1853–54	3½ per cent.	3 months after notice by Government	65,200	-	-	65,200	-	65,200
4½ per Cent. Loan for Indore State Railway	4½ per cent.	-	890,000	55,000	*55,000*	945,000	-	945,000
5 per Cent. Debenture Loan of 1867–68	5 per cent.	*Rs.* 49,56,000 on 1 June 1877 *Rs.* 60,03,000 on 1 June 1882	1,095,900	-	-	1,095,900	-	1,095,900
4 per Cent. Promissory Notes for Mysore Family	4 per cent.	-	253,176	-	-	253,176	9,880	243,296
4 per Cent. Loan from Maharajah Scindia for State Railway	4 per cent.	-	1,000,000	213,627	*213,627*	1,213,627	-	1,213,627
		TOTAL DEBT IN INDIA drawing Interest £.	72,705,641	425,737	*268,637*	73,131,378	157,737	72,973,641
LOANS NOT BEARING INTEREST.								
5 per Cent. Loan of 1856–57	5 per cent.	-	41,880	50	-	41,930	8,000	33,930
5 per Cent. Loan of 1825–26	5 per cent.	-	6,240	-	-	6,240	-	6,240
5 per Cent. Loan of 1841–42	5 per cent.	Already advertised for payment	1,590	-	-	1,590	-	1,590
5 per Cent. Loan of 1854–55 for Public Works	5 per cent.	-	8,350	-	-	8,350	1,000	7,350
Treasury Bills at 2½ pie per cent. per diem	-	-	9,280	-	-	9,280	-	9,280
		TOTAL DEBT IN INDIA not bearing Interest £.	67,340	50	-	67,390	9,000	58,390
		TOTAL DEBT IN INDIA £.	72,772,981	425,787	*268,637*	73,198,768	166,737	73,032,031

* Includes amount held in England.

Comptroller General's Office, Calcutta,
18 January 1877.

E. F. Harrison, Comptroller General.

George Hamilton,
Under Secretary of State.

EAST INDIA (LOANS RAISED IN INDIA).

RETURN of all Loans raised in *India* chargeable on the Revenues of *India*, outstanding at the Commencement of the Half-year ending on the 30th September 1876, with the Rates of Interest payable thereon, and the Date of the Termination of each Loan, the Debt incurred during the Half year, the Moneys raised thereby during the Half-year, the Loans paid off or discharged during the Half-year, and the Loans outstanding at the Close of the Half-year, stating, so far as the Public Convenience will allow, the Purpose or Service for which Moneys have been raised during the Half-year.

(*Presented pursuant to Acts* 36 *Vict. c.* 32, *and* 37 *Vict. c.* 3.)

Ordered, by The House of Commons, *to be Printed*,
14 *February* 1877.

EAST INDIA (NUMBER OF CHRISTIANS, &c.).

RETURN to an Address of the Honourable The House of Commons, dated 13 February 1877;—*for*,

"COPY of the RETURNS furnished by the Local Authorities in *India* as to Number of CHRISTIANS of different Persuasions in the different CONGREGATIONS, SALARIES of MINISTERS of RELIGION ministering to them, &c., in reply to the Circular of the Central Government, laid before Parliament last Year."

India Office,
February 1877.

LOUIS MALLET,
Under Secretary of State.

(Mr. O'Reilly.)

Ordered, by The House of Commons, *to be Printed*,
15 *February* 1877.

COPY of the RETURNS furnished by the Local Authorities in *India*, as to Number of CHRISTIANS of different Persuasions in the different CONGREGATIONS; SALARIES of MINISTERS of RELIGION ministering to them, &c.; in reply to the Circular of the Central Government, laid before Parliament last Year.

(No. 7 of 1876.)

Government of India.—Home Department.—Ecclesiastical.

To the Most Honourable the Marquis of *Salisbury*, Her Majesty's Secretary of State for India.

My Lord Marquis, Simla, 3 July 1876.

IN continuation of our Despatch, No. 4, dated the 24th March last, we transmit the replies of the Local Governments and Administrations (specified in the annexed list) to our letters of the 14th August and 2nd November 1872, respecting the position of Roman Catholic Priests in India who receive an allowance from Government.

2. As we stated in our former Despatch, no minutes were recorded by Members of Council on this subject. The note by the late Earl of Mayo, of the 2nd December 1870, was not brought on the proceedings of Government, for the reasons previously explained.

We have, &c.
(signed) *Lytton.*
F. P. Haines, General.
H. W. Norman.
A. Hobhouse.
E. C. Bayley.
W. Muir.
A. J. Arbuthnot.
A. Clarke.

LIST OF ENCLOSURES.

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ENCLOSURES.

(Ecclesiastical—March 1876.)

No. 705—70, dated Camp Chennarayaputana, the 6th February 1873.

From *J. Puckle*, Esq., Officiating Secretary to the Chief Commissioner of Coorg, to the Secretary to the Government of India.

I HAVE the honour, by direction of the Chief Commissioner, to acknowledge the receipt of your letter, No. 390, dated 2nd November last, calling for information under certain heads regarding each charge in Coorg to which a Presbyterian Chaplain now stands appointed, and for similar details regarding the charges of Roman Catholic Chaplains and Roman Catholic Priests now receiving aid from Government.

2. In reply, I am directed to submit a statement giving the details required, and to state that no charges are incurred on account of a Presbyterian Chaplain, nor are there any Presbyterian services held in the Province.

3. The only charge incurred on account of Roman Catholic Chaplains and Roman Catholic Priests is an allowance of 20 rupees granted to the Roman Catholic Priest at Veerrajendrapett under the sanction conveyed in para. 4 of letter, dated 24th June 1834, No. 36, from the Secretary to the Government of India in the Political Department.

STATEMENT showing the Number of EUROPEANS, &c., who are PRESBYTERIANS or Attendants on the PRESBYTERIAN SERVICES, and those who are ROMAN CATHOLICS, in the Province of *Coorg*.

	1. Total Number of European, Eurasian, and American Civil Population who are—		2. Number out of the Total who are on the Service of Government and of their Families.		3. Number out of those shown under (2) who are European British Subjects or Americans.	
———	Men.	Women and Children.	Men.	Women and Children.	Men.	Women and Children.
Presbyterians -	Europeans - 24	Europeans - 7	—	—	—	—
	Eurasian - 1	Eurasians - -	—	—	—	—
Roman Catholics -	Europeans - 3	Europeans - 3	—	—	—	—
	Eurasians - 16	Eurasians - 23	Eurasians - 4	Eurasian - 1	—	—

Remarks.—No European troops are serving in Coorg.

J. Puckle,
Officiating Secretary to the Chief Commissioner of Coorg.

(Ecclesiastical—March 1876.)

No. 533—29, dated Nagpur, the 20th February 1873.

From *L. Neill*, Esq., Assistant Secretary to the Chief Commissioner of the Central Provinces, to the Secretary to the Government of India.

I AM desired to acknowledge the receipt of your letter, No. 388, of the 2nd November last, and endorsement, No. 375, of the same date, and in reply to state that there are no charges to which a Presbyterian Chaplain or a Presbyterian Minister, not being a Chaplain, stand appointed in these Provinces, nor are there any charges of Church of England Clergymen who are not Government Chaplains. There are four Church of England charges, and a list of the Chaplains, Bengal Establishment, appointed to them, with a statistical detail of the members or attendants on the services of that church are given in Appendix (A.) In Appendix (B.), in the same way, are given the names of the priests and statistics of the congregation of the three Roman Catholic charges in these Provinces. In submitting these statements, I am only to remark that in many of the Census schedules, filled up at the enumeration last year, the religious sect or church to which a person belonged has not been fully stated, Presbyterians, for instance, returning themselves as Protestants; but the defects have been repaired as far as it is possible to do so, and the returns now submitted are believed to be approximately correct.

(A.)

RETURN showing the Number of EUROPEANS, EURASIANS, and AMERICANS in the CENTRAL PROVINCES, who are Members of the CHURCH of ENGLAND, or Attendants on the Services of that Church.

STATION.	Name of Chaplain of Bengal Establishment.	(A.) Number of European Troops who are Members of the Church of England, or Attendants on the Services of that Church, and of the Women and Children belonging to them.				(B.) Total Number of European, Eurasian, and American Civil Population, who are Members of the Church of England, or Attendants on its Services.				(C.) Number out of the Total (B.) who are in the Service of Government and their Families.				(D.) Number out of those shown under (C.) who are European British-born Subjects, or Americans, and of their Families.			
		Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.
Nagpur - -	(a)	30	5	9	44	181	155	91	427	147	144	85	376	99	95	62	256
Kamthi - -	(b)	726	68	86	880	32	45	47	124	26	42	44	112	23	37	36	96
Jubbulpore -	(c)	311	24	40	375	169	103	85	357	41	21	33	95	34	18	27	79
Saugor - -	(d)	274	12	27	313	24	12	16	52	19	10	13	42	17	9	11	37

(a) Rev. G. T. Caruthers, M.A. (b) Rev. W. H. Gale, B.A. (c) Rev. W. B. Drawbridge, M.A. (d) Rev. B. Hammond.

Nagpur, 20 February 1873.

L. Neill,
Assistant Secretary to the Chief Commissioner, Central Provinces.

(B.)

RETURN showing the Number of EUROPEAN, EURASIAN, and AMERICAN POPULATION in the CENTRAL PROVINCES, who are Members of the ROMAN CATHOLIC CHURCH, or Attendants on the Services of that Church.

STATION.	Name of Chaplain.	(A.) Number of European Troops who are Members of the Roman Catholic Church or Attendants on the Services of that Church, and of the Women and Children belonging to them.				(B.) Total Number of European, Eurasian, and American Civil Population, who are Members of the Roman Catholic Church, or Attendants on its Services.				(C.) Number out of the Total (B.) who are in the Service of Government and their Families.				(D.) Number out of those shown under (C.) who are European British-born Subjects, or Americans, and of their Families.			
		Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.
Kamthi - -	(a)	248	70	111	429	25	39	55	119	19	24	35	78	5	1	2	8
Jubbulpore -	(b)	173	27	52	252	37	21	22	80	21	14	15	50	7	3	4	14
Saugor - -	(c)	122	8	19	149	11	4	12	27	7	3	6	16	1	–	–	1

(a) Rev. J. M. Desbornes, 200 rupees per mensem. (b) Rev. — Delaley, 150 rupees per mensem. (c) Rev. — Raphael, 150 rupees per mensem.

Nagpur, 20 February 1873.

L. Neill,
Assistant Secretary to the Chief Commissioner, Central Provinces.

(Ecclesiastical—March 1876.)

No. 29, dated Fort St. George, the 17th February 1873.

From the Honourable *W. Hudleston*, Chief Secretary to the Government of Madras, to the Secretary to the Government of India.

WITH reference to the letters noted marginally, I am directed to transmit two Returns regarding the Presbyterian Chaplains on the Madras Ecclesiastical Establishment, and two Returns of the Roman Catholic Priests who receive an allowance from Government.

From Officiating Under Secretary to Government of India, Home Department, dated 14th August 1872, No. 263.
From Officiating Secretary to Government of India, Home Department, dated 2nd November 1872, No. 382.

STATEMENT showing the Number of PRESBYTERIAN CHAPLAINS in the MADRAS ECCLESIASTICAL ESTABLISHMENT, the Station at which each is now Posted, the Strength of European Troops at each Station, the Number of European and Eurasian Civil Population at each, and the Salary of each Chaplain.

NUMBER OF CHAPLAINS.	Station at which Posted.	Strength of European Troops.			European and Eurasian Civil Population at each.	Total.	Salary of each Chaplain.	REMARKS.
		Men.	Women.	Children.				
							Rs.	
1. Rev. Alexander Walker, Senior Chaplain.	Madras -	133	8	26	385	565	800	*N.B.*—The Senior Chaplain draws a special allowance of 150 rupees per month, and Presidency house rent at the rate of 130 per mensem.
2. ——, Assistant Chaplain	—	-	-	-	--	—	—	
3. Rev. Augustus Clifford Bell, M.A., Chaplain.	Bangalore -	185	21	38	231	475	800	
4. Rev. William Alexander Liston, Assistant Chaplain.	Secunderabad	206	Women and Children, 86		100	392	500	The Chaplain at Secunderabad draws carriage allowance 50 rupees, and 30 rupees for visiting out-stations.

Madras, 20 November 1872.

A. Walker,
Senior Chaplain, Church of Scotland.

STATEMENT showing the Number of PRESBYTERIAN CHAPLAINS in the MADRAS ECCLESIASTICAL ESTABLISHMENT, the Station at which each is now Posted, the Strength of European Troops at each Station, the Number of European and Eurasian Civil Population at each, and the Salary of each Chaplain, in accordance with Order of Government No. 210, dated 15th November 1872.

NUMBER OF CHAPLAINS.	Station at which Posted.	Number of Presbyterian Troops.			Number of Presbyterian Civil Population.			Number of Civil Population in the Service of Government.			Number of Civil Population who are European British-born Subjects or Americans.			Total of Presbyterians at Madras, Bangalore, and Secunderabad.	SALARIES.
		Officers and Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.		
1. Rev. Alexander Walker, Senior Chaplain -	Madras -	146	8	26	111	109	252	38	33	103	62	43	101	652	*Rs.* Salary - - 800 Special allowance - - 150 House-rent - 130
2. ——, Assistant Chaplain - - -															
3. Rev. Augustus Clifford Bell, M.A., Chaplain.	Bangalore -	206	35	61	52	74	53	7	8	8	5	3	2	481	Salary - - 800
4. Rev. William Alexander Liston.	Secunderabad	251	36	71	32	28	57	Almost all are employed in His Highness the Nizam's service			-	-	-	475	Salary - - 500 Carriage allowance - - 50 Visiting out-stations - 30
	TOTAL -	603	79	158	195	211	362				-	-	-	1,608	

Madras, 20 January 1873.

A. Walker,
Senior Chaplain, Church of Scotland.

STATEMENT *showing the* STATIONS *at which* ROMAN CATHOLIC PRIESTS *are paid by* GOVERNMENT, *the Names of the Priests who are Paid, and the Amount paid to each, and the Military and Civil European and Eurasian Population (Protestant and Catholic) of every such Station.*

NAME OF THE STATION.	Name of Roman Catholic Chaplain who receives an Allowance from Government at the Station.	Amount of Allowance.	Circumstances under which the Allowance is granted.	Total Strength of the European Troops at the Station.	The Number of Troops professing the Roman Catholic Religion.	Total Strength of the European and Eurasian Civil Population of the Station.	Total Roman Catholic European and Eurasian Civil Population of the Station.
Madras	Very Rev. J. Colgan	200 rupees, with 30 rupees horse allowance, and 23 rupees for Church Establishment.	For ministering to the Roman Catholic European troops in Garrison and attendance at General Hospital.	927 (including women and children, 1,463).	203 (including women and children, 402).	14,163	5,546.
St. Thomas' Mount	Rev. D. Forde	200 rupees, with 23 rupees for Church Establishment.	For ministering to the Roman Catholic European troops at the station.	414 (including women and children, 706).	98 (including women and children, 185).	517	216.
Palaveram	Rev. W. H. Conley	150 rupees, with 23 rupees for Church Establishment.	- ditto - ditto	112	308 (inclusive of women and children).	173	80.
Poonamallee	Rev. F. R. Ryan	150 rupees, with 23 rupees for Church Establishment.	- ditto - ditto	164	54 (including women and children, 92).	441	340.
Bellary	Rev. P. Doyle	200 rupees, with 30 rupees horse allowance, and 23 rupees for Church Establishment.	For ministering to the Roman Catholic troops at the station.	1,166	287 (including women and children, 470).	130 (including women and children, 462).	35 (including women and children, 144).
Secunderabad	Rev. C. Tagliabue	200 rupees, 30 rupees horse allowance, and 23 rupees for Church Establishment.	- ditto - ditto	About 3,000	1,021 (inclusive of women and children).	Not furnished	403.
	Rev. V. Bigi	150 rupees - ditto - ditto					
	Rev. F. Pozzi	100 rupees - ditto - ditto					
Kampti	Rev. J. M. Desbornes	200 rupees, with 23 rupees for Church Establishment.	- ditto - ditto	1,200 (including women and children, 1,609).	507	252	180.
Bangalore	Rev. J. A. Chevalier	200 rupees, with 30 rupees horse allowance, and 23 rupees for Church Establishment.	- ditto - ditto	1,604 (including women and children, 2,581).	542 (including women and children, 690).	688 (including women and children, 3,600).	216 (including women and children, 978).
	Rev. E. Gasnier, Assistant Roman Catholic Chaplain.	150 rupees - ditto - ditto	- ditto - ditto	—	—	—	—
Wellington	Rev. J. Pottier	150 rupees, with 23 rupees for Church Establishment.	- ditto - ditto	394 (including women and children, 607).	170 (inclusive of women and children).	28	17.
Trichinopoly	Rev. J. Ford	- ditto - ditto	- ditto - ditto	360	120 (including women and children, 250).	450	156.
Ootacamund	Rev. F. Triquet	30 rupees	For ministering to the European prisoners in the prison at that station.	—	—	—	—
Calicut and Mulliapoorum.	Rev. F. Alphonsus	150 rupees, with 15 rupees for Church Establishment, and travelling allowance for visiting Mulliapoorum.	For ministering to the Roman Catholic troops at Calicut and Mulliapoorum.	—	—	—	—
Cannanore	Rev. F. Luis	150 rupees, and 23 rupees for Church Establishment.	For ministering to the Roman Catholic troops at the station.	—	—	—	—

The population returns of the last three stations not yet received. They will be furnished hereafter.

+ *S. Fennelly.*

STATEMENT showing the STATIONS in the MADRAS PRESIDENCY at which ROMAN CATHOLIC PRIESTS receive an ALLOWANCE from GOVERNMENT, the Circumstances under which such Allowance is Paid, and the Number of Roman Catholic European Troops, and of the Women and Children belonging to them at each such Station; also the Total Number of Roman Catholic European, Eurasian, and American Civil Population who are in the Service of Government, with the Women and Children belonging to them; and, finally, the Total Number of Roman Catholic British-born Europeans and Americans in the Service of Government, with their Families.

1. STATION.	2. Roman Catholic Priest who receives an Allowance from Government.	3. Circumstances under which the Allowance is granted.	4. Number of European RomanCatholic Troops at the Station.			5. Roman Catholic European, American, and Eurasian Civil Population.			6. Roman Catholic Europeans, Eurasians, and Americans in the Service (not Military) of Government.			7. Roman Catholic Europeans (British-born) and Americans in the Service (not Military) of Government.		
			Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.
Madras - -	Very Rev. J. Colgan, 200 rupees, 23 rupees church allowance, and 30 rupees for horse allowance.	For ministering to the spiritual wants of the European troops.	203	71	128	1,788	1,665	2,093	355	348	1,027	28	23	63
Saint Thomas' Mount.	Rev. D. Forde, 200 rupees, and 23 rupees church allowance.	- ditto - ditto -	98	27	60	34	52	1 17	8	2	2	1	-	-
Palaveram - -	Rev. W. H. Conley, 150 rupees, and 23 rupees church allowance.	- ditto - ditto -	74	63	171	30	15	35	-	-	-	-	-	-
Poonamallee -	Rev. F. R. Ryan, 150 rupees, and 23 rupees church allowance.	- ditto - ditto -	51	27	35	13	13	48	3	2	20	-	-	-
Bellary - -	Rev. P. Doyle, 200 rupees, 23 rupees church allowance, and 30 rupees horse allowance.	- ditto - ditto -	287	68	115	35	28	81	6	5	14	1	-	-
Secunderabad -	Rev. C. Tagliabue, 200 rupees, 30 rupees horse allowance, and 23 rupees for church. Rev. V. Bigi, 150 rupees, 30 rupees horse allowance, and 23 rupees for church. Rev. F. Pozzi, 100 rupees - -	- ditto - ditto -	667	97	198	126	98	242	65	48	86	17	13	35
Kampti - -	Rev. J. M. Desbornes, 200 rupees, and 23 rupees church allowance.	- ditto - ditto -	288	82	137	89	63	128	41	27	39	11	5	-
Bangalore - -	Rev. J. A. Chevalier, 200 rupees, church allowance 23 rupees, and 30 rupees horse allowance.	- ditto - ditto -	542	90	148	216	246	516	38	30	76	6	4	11
	Rev. E. Gasnier, 150 rupees -	—	-	-	-	-	-	-	-	-	-	-	-	-
Trichinopoly -	Rev. J. Dupuy, 150 rupees, and 23 rupees church allowance.	- ditto - ditto -	150	65	75	65	50	41	40	15	20	5	6	9
Wellington -	Rev. J. Pottier, 150 rupees, and 23 rupees church allowance.	- ditto - ditto -	75	28	67	3	6	8	-	-	-	-	-	-
Cannanore - -	Rev. F. Luis, 150 rupees, and 23 rupees church allowance.	- ditto - ditto -	398	105	240	200	221	153	-	-	-	-	-	-
Calicut - -	Rev. F. Alphonsus, 100 rupees, church allowance 14 rupees, and travelling allowance 48 rupees	- ditto - ditto -	60	3	3	130	153	443	49	43	194	3	3	13
Ootacamund -	Rev. F. Triquet, 30 rupees -	For ministering to the spiritual wants of the inmates of the European Prison.	-	-	-	47	35	60	9	5	20	3	3	9

Madras, 6 February 1873.

+ *S. Fennelly.*

(Ecclesiastical—March 1876.)

No. 12, dated Haidarabad, the 17th April 1873.

From Major *W. Tweedie*, First Assistant Resident at *Haidarabad*, to the Secretary to the Government of *India*.

As requested in your office letter, No. 391, of the 2nd November last, the Resident has the honour to submit the accompanying statement, showing, as far as can be ascertained, the number of Europeans and others who are Presbyterians or attendants on Presbyterian services throughout the several localities, situated in His Highness the Nizam's country, which are noted in the margin.

The Residency Bazaars.
Haidarabad.
Gulburgah.
Jaulnah.
Mominabad.
Lingasoogoor.
Bolarum.
Hingolee.

2. Similar details regarding the charge of Roman Catholic Chaplains and Priests are also embodied in the statement.

3. There are no Roman Catholic Chaplains or Presbyterian Ministers appointed specially for the places above indicated, nor does it appear that the Chaplains or Ministers who officiate at the above places receive any remuneration from Government for their services.

4. Similar statistics for Berar, which it may here be mentioned is ecclesiastically under the Bishop of Madras, are reported by the Commissioners not to be obtainable, as there is no Presbyterian or Roman Catholic Chaplains located in the Province.

LIST of EUROPEAN, EURASIAN, and AMERICAN POPULATIONS residing in the following Stations of the HAIDARABAD TERRITORY who are Members of the PRESBYTERIAN and ROMISH CHURCHES.

1. STATIONS.	Members of the Church of Scotland.												Members of the Church of Rome.												European British-born Subjects.						Number in the Service of Government.		
	2. Europeans.			3. Eurasians.			4. European British-born Subjects or Americans.			5. Total.			6. Europeans.			7. Eurasians.			8. European British born Subjects or Americans.			9. Total.			10. Of Church of Scotland.			11. Of Church of Rome.			12. European.	13. Eurasian.	14. American.
	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Families. Women.	Families. Children.	Men.	Men.	Men.
Residency Bazaars	3	–	–	1	1	7	–	–	–	4	1	7	4	–	–	10	4	5	–	–	–	14	4	5	1	–	–	1	–	–	2	19	–
Gulburgah	–	–	–	–	–	–	–	–	–	244	85	126	–	–	–	–	–	–	–	–	–	–	–	–	44	23	27	–	–	–	–	–	–
Haidarabad	–	–	–	–	–	–	–	–	–	–	41	–	–	–	–	–	–	–	–	–	–	–	193	–	–	2	–	–	9	–	–	–	–
HAIDARABAD ASSIGNED DISTRICTS:																																	
Jaulnah	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mominabad	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Linsoogoor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bolarum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hingolee	–	–	–	1	1	2	–	–	–	1	1	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

17 April 1873.

W. Tweedie, Major,
First Assistant Resident at Haidarabad.

(Ecclesiastical—March 1876.)

EXTRACT from the Proceedings of the Government of Madras in the Military Department ,dated Fort St. George, the 7th May 1873.

READ the following letter:

No. 259, dated Fort St. George, the 2nd May 1873.

From Major *G. D. Beresford,* Officiating Assistant Adjutant General, Madras, to the Secretary to the Government of Madras, Military Department.

WITH reference to the Proceedings of Government, No. 3867, dated 7th December 1872, I have the honour, by order of the Commander-in-Chief, to forward the accompanying return showing the number of European troops serving in the Madras Presidency, who are Presbyterians, or attendants on the Presbyterian services, and Roman Catholics, and of the women and children belonging to them, together with the charges of the Presbyterian Ministers or Roman Catholic Chaplains, &c., receiving aid from Government.

(No. 1579.)

COPY of the above, with the return, forwarded to the Officiating Military Secretary to the Government of India for submission to the Right Honourable the Governor General in Council, with reference to Lieutenant-Colonel Lees' docket, No. 887, dated 20th November 1872.

(True Extract.)

(signed) *A. C. Silver,* Colonel,
Secretary to the Governor of Madras.

No. 833 (Returns), dated Fort William, the 22nd May 1873.

Endorsed by the Military Department.

COPY of the foregoing, with the return in original, forwarded to the Home Department for information with reference to the docket from this Department, No. 889, dated 20th November 1872.

RETURN showing the Number of EUROPEAN TROOPS serving in the MADRAS PRESIDENCY who are PRESBYTERIANS and ROMAN CATHOLICS, with the Women and Children belonging to them.

STATION.	Number of European Troops who are Presbyterians or Attendants on the Presbyterian Services, and of the Women and Children belonging to them.			Number of European Troops who are Roman Catholics or Attendants on Roman Catholic Services, and of the Women and Children belonging to them.			Roman Catholic Chaplains or Priests receiving Aid from Government.	Specification and Nature of Charge.	Amount of Specification of Aid.		REMARKS.
	Men.	Women.	Children.	Men.	Women.	Children.				*Rs.* *Rs.*	
Mysore Division — Bangalore	86	6	18	542	90	148	Rev. J. A. Chevalier	Chaplain	1st Chaplain, per mensem	200	
							Rev. E. Gasnier	Assistant Chaplain	Assistant Chaplain, per mensem 150; Horse allowance 30; Allowance for the chapel 23	203	
Mysore Division — Wellington	9	4	4	26	12	32	Rev. J. M. Pottier	Catholic Chaplain	Per mensem 150; Church allowance 23	173	
Provinces of Malabar and Canara — Cannanore	39	1	4	152	21	21	Rev. M. Lewis	- ditto	Per mensem	150	
Calicut	2	–	–	9	4	1	Rev. F. Alphonsus	- ditto	- ditto	100	
Malliapooram	2	–	–	6	5	–	- - - - -	- - - -	- - - - - - - - -	-	The Roman Catholic Chaplain at Calicut visits the detachment generally once a month.
Ceded Districts, Bellary	33	3	6	324	71	114	Rev. P. Doyle	Catholic Priest	Per mensem 200; Horse allowance 30; For lighting place of worship 23; In addition to the above he draws travelling allowance at the rate of 12 annas per mile whenever he visits a detachment of more than 50 European soldiers.	253	
Hyderabad Subsidiary Force. — Secunderabad	230	39	87	660	96	176	Rev. C. Tagliabue	- ditto	Per mensem 200; Horse allowance 30; Lighting the chapel 23	253	The Presbyterian Troops are under the charge of the Rev. Mr. Liston, Chaplain, Church of Scotland, who draws 500 rupees per mensem.
							Rev. V. Bigi	- ditto	Per mensem 150; Horse allowance 30; Lighting the chapel 23	203	
							Rev. F. Pozzie	- ditto	Per mensem	100	
Nagpur Force, Kampti	45	8	16	248	70	111	Rev. J. M. Desbonces	Catholic Chaplain	Per mensem, exclusive o travelling batta	200	
British Burma Division. — Rangoon	129	4	14	400	61	145	Rev. — Bernard	Catholic Priest	Per mensem	200	
Thayetmyo	31	3	3	257	43	92	Rev. — Petit	- ditto	- ditto	150	
Tonghoo	22	3	4	199	36	75	Rev. — Biffi	- ditto	- ditto	150	
Moulmein	2	1	2	28	5	12	- - None.	—	—		
Northern District. — Waltair	–	–	–	16	17	40	- - - - -	Two Catholic Priests	Neither of them received any Government aid.		
Centre District — Fort Saint George	102	8	10	267	24	69	Rev. E. Lee	Catholic Chaplain	Per mensem	200	
St. Thomas' Mount	13	3	5	69	22	55	Rev. D. Forde	Catholic Priest	Per mensem 200; Establishment allowance 23	223	
Palaveram	4	–	5	66	63	171	Rev. W. H. Conley	Catholic Chaplain	Per mensen	150	
Poonamallee	10	1	–	36	15	30	Rev. F. R. Ryan	- ditto	- ditto	150	
Southern District. — Trichinopoly	26	3	10	101	14	22	Rev. J. Forde	Catholic Priest	- ditto 150; Extra charge for lighting and cleaning the church 23	173	

N.B.—There is no Presbyterian Minister (not a Chaplian) in any of the above stations receiving remuneration from Government.

Fort St. George, 2 May 1873.

G. D. Beresford, Major,
Officiating Assistant Adjutant General, Madras.

(Ecclesiastical—March 1876.)

No. 88 V. S., dated Calcutta, 29th May 1873.

From *H. J. S. Cotton*, Esq., Officiating Under Secretary to the Government of Bengal, General Department, to the Secretary to the Government of India.

With reference to the orders of His Excellency the Governor General in Council, contained in G. G. O., No. 265 and 384, of the 14th August and 2nd November 1872, respectively, I am directed to submit to the Government of India the accompanying Statements.

Statement (A.) shows the present disposal of Presbyterian Chaplains on the Bengal Establishment, and the station to which each is now posted, with details required.

Statement (B.) gives the same particulars as regards the charge of each Presbyterian Minister who, not being a Chaplain, receives directly or indirectly any portion of his remuneration from the Government.

Statement (C.) gives similar information as to the charges of Roman Catholic Priests who receive any salary or allowance from Government.

2. Returns showing the charges of Chaplains on the Bengal Establishment and of every Church of England Clergyman who, not being a Chaplain, receives some remuneration from the Government, have been furnished to the Right Reverend the Lord Bishop of Calcutta.

Statement (A.)

Chaplains of the Church of Scotland.

STATION.	NAME OF CHAPLAIN.	Pay.	(A.) Number of European Troops at the Station who are Presbyterians or Attendants on Presbyterian Services.		(B.) Number of European, Eurasian, and American Civil Population who are Presbyterians or Attendants on Presbyterian Services.		(C.) Number of those in Column (B.) who are in the Service of Government, and their Families.		(D.) Number of those in Column (C.) who are European British-born Subjects or Americans, and their Families.	
			Troops.	Women and Children belonging to them.	Men.	Women and Children.	Men.	Women and Children.	Men.	Women and Children.
		Rs.								
St. Andrew's Church	The Rev. J. M. Thompson -	800	65	30	266	414	68	106	37	47
	Conveyance Allowance -	50								
	House-rent - - -	170								
		1,020								

H. J. S. Cotton,
Officiating Under Secretary to the Government of Bengal.

STATEMENT (B.)

PRESBYTERIAN MINISTERS, not CHAPLAINS, but receiving some Remuneration from Government.

STATION.	NAME.	NATURE OF CHARGE.	Amount and Shape of Aid received from Government.	(A.) Number of European Troops at the Station who are Presbyterians or Attendants on Presbyterian Services.		(B.) Number of European, Eurasian, and American Civil Population who are Presbyterians or Attendants on Presbyterian Services.		(C.) Number of those in Column (B.) who are in the Service of Government, and their Families.		(D.) Number of those in Column (C.) who are European British-born Subjects or Americans, and their Families.	
				Troops.	Women and Children belonging to them.	Men.	Women and Children.	Men.	Women and Children.	Men.	Women and Children.
Dum-Dum -	Rev. Mr. Jardine -	Visits the Presbyterian troops at Dum-Dum every Sunday morning.	Is allowed 12 rupees a visit as travelling allowance.	72	30	-	-	-	-	-	-

H. J. S. Cotton,
Officiating Under Secretary to the Government of Bengal.

STATEMENT (C.)

CHAPLAINS of the ROMAN CATHOLIC CHURCH.

STATION.	NAME.	Salary or Allowance.	(A.) Number of European Troops at the Station who are Roman Catholics or Attendants on the Services of the Roman Catholic Priests.		(B.) Number of European, Eurasian and American Civil Population who are Roman Catholics or Attendants on Services of the Roman Catholic Priests.		(C.) Number of those in Column (B.) who are in the Service of Government, and their Families.		(D.) Number of those in Column (C.) who are European British-born Subjects or Americans, and their Families.	
			Troops.	Women and Children.	Men.	Women and Children.	Men.	Women and Children.	Men.	Women and Children.
		Rs.								
Fort William - -	Rev. A. Darrebare - -	200	346	170	8	44	2	9	2	9
	House allowance -	30								
	Church cleaning, &c. -	33								
		263								
Dum-Dum - - -	Rev. F. DeCock - -	150	170	75	5	12	2	5	2	5
	Church allowance -	23								
		173								
Barrackpore - -	Rev. J. Fitzpatrick - -	150	116	45	8	17	3	3	-	-
Presidency Gaol - -	Rev. V. Verlinden - -	75	4	-	35	1	1	-	33	1
Darjeeling - - -	Rev. Father Accursio -	200 *a.*	Has declared himself unable to give the information. A further call will be made.							
Hazaribagh - - -	Rev. Father Philip - -	200	286	129	7	19	7	13	5	12
Dinapore - - -	Rev. Father Lewis - -	200	243	136	50	174	4	16	45	174

H. J. S. Cotton,
Officiating Under Secretary to the Government of Bengal.

(Ecclesiastical—March 1876.)

No. 136, dated Bombay Castle, the 27th June 1872.

From the Secretary to the Government of Bombay, Ecclesiastical Department, to the Secretary to the Government of India.

No. 247, dated 27th July 1872.
No. 264, dated 14th August 1872.
No. 381, dated 2nd November 1872.
No. 383, dated 2nd November 1872.

I HAVE the honour to acknowledge the receipt of your letters as per margin, calling for certain information in order to assist the Government of India in the decision on the general question of ecclesiastical establishments now pending before it.

Your first letter specifies in detail certain points upon which information is sought with regard to the Church of England Establishment, as follows:—

The number of Chaplains on the Bombay Establishment, showing the station at which each is now posted, and the salary drawn by each.

The strength of European troops at each station.

The number of European and Eurasian population at each station.

A statement showing the name of each Church of England Clergyman, who, not being a Government Chaplain, receives a portion of his salary from Government, with particulars as to the nature of each charge, &c.

Your letter, No. 381, dated 2nd November 1872, calls for further details regarding the same establishment, as follows:

(*a.*) Number of European troops at each station who are members of the Church of England or attendants on the services of that church, and of the women and children belonging to them.

(*b.*) Total number of European, Eurasian, and American civil population who are members of the Church of England or attendants on its services.

(*c.*) Number out of the total (*b*) who are in the services of the Government, and of their families.

(*d.*) Number out of those shown under (*c*) who are European British-born subjects or Americans, and of their families under each head; the number of women and children should be separately stated.

Your second letter calls for the same information as required in your first in respect to the Presbyterian Establishment; and in addition it calls for a return of Roman Catholic priests who receive any salary or allowance from Government, with particulars and circumstances under which such salary or allowance is granted.

Your last letter requires that the same information sought in your third should also be furnished in regard to the Presbyterian Establishment.

In reply, I am desired to submit the following statements, which furnish in detail the information required by your first letter:—

Statement No. 1, showing the number of Chaplains on the Bombay Establishment, the stations at which they are posted, and the salary drawn by each.

Statement No. 2, showing the strength of European troops at each station in the Bombay Presidency.

Statement No. 3, showing the number of European and Eurasian population at each station under the Bombay Presidency.

Statement No. 4, showing the number of each Church of England Clergyman who, not being a Government Chaplain, receives a portion of his salary from Government, with particulars as to the nature of each charge, &c.

The accompanying Statement No. 5 contains the information required in your letter No. 381, dated 2nd November, so far as it has been possible to furnish it.

These statements are necessarily not so accurate as they might have been if the result of the recent Census had been made known.

With regard to the Presbyterian Establishment, the Senior Chaplain, Church of Scotland, gives much of the information required in the following paragraph:

"That the number of Chaplains on the Bombay Ecclesiastical Establishment of the Church of Scotland was in 1859 fixed at four.

"That these were thus posted—The Senior Chaplain and Assistant Chaplain at Bombay,

Bombay, salaries 980 rupees and 500 rupees per mensem, respectively. A Chaplain for Puna and Kirkee, salary 800 rupees per mensem.

"An Assistant Chaplain at Kurrachi, salary 500 rupees per mensem.

"That there is not any Presbyterian Clergyman who, not being a Government Chaplain, receives a portion of his salary from Government."

The particulars required in your letter No. 383, dated 2nd November, are contained in the accompanying Statement No. 6.

The Statement No. 7 has been prepared by the Controller of Military Accounts, and gives the number of Roman Catholic priests who receive any salary or allowance from Government, with particulars and circumstances under which such salary or allowance is granted, as demanded in your letter No. 264, dated 14th August 1872.

In conclusion, I am desired to express regret at the apparently great delay which has occurred in replying to the communications above referred to, but the nature of the inquiry embraced so wide a range that delay in the collection of the required information in a complete form was unavoidable.

No. 1.

STATEMENT showing the Number of the CHAPLAINS on BOMBAY ESTABLISHMENT, the STATIONS at which they are Posted, and the SALARY drawn by each.

NAMES.	Salary.	STATION.	REMARKS.
SENIOR CHAPLAINS.	*Rs. a. p.*		
The Rev. E. Newton Dickson - -	950 - -	Dharwar and Concan stations.	The Senior Chaplain.
„ W. H. Cummins, M.A. -	800 - -	Sattara with Mahableshwur.	Residing at Sattara and visiting Mahableshwur, except in hot season when residing at Mahableshwur.
„ G. A. F. Watson, M.A. -	800 - -	Puna with Poorundhur.	Visiting Poorundhur once a month, except in hot season, when twice.
„ C. T. Wilson, M.A. - -	800 - -	Aden.	
„ R. Easum, M.A. - -	483 5 4	Europe - - -	Sick certificate.
„ A. Miller, B.A. - -	800 - -	Deesa with Abu - -	Visiting Abu.
Venerable C. H. Leigh Lye, M.A. -	1,066 10 8	Bombay - - -	Archdeacon and Senior Presidency Chaplain visiting Tanna, Matheran, and Bandora.
The Rev. H. H. Pace - - -	800 - -	Belgaum (Camp) -	Visiting Fort.
„ W. L. Eames, M.A. - -	800 - -	Puna Gorpoorie - -	Visiting Sholapur once a month (on privilege leave).
„ W. Maule, LL.B. - -	800 - -	Colaba - - -	On three months' privilege (leave from 11th March).
„ H. W. Bagnell, B.A. -	800 - -	Ahmadnagar.	
JUNIOR CHAPLAINS.			
The Rev. S. Stead, M.A. - -	292 10 8	Europe - - -	Sick certificate.
„ T. Horsfall - - -	500 - -	Deolali - - -	Visiting Asirgarh.
„ A. L. Onslow, B.A. - -	292 10 -	Europe - - -	Furlough on private affairs.
„ G. C. Raynell, M.A. - -	500 - -	Byculla.	
„ C. Walford, M.A. - -	500 - -	Rajkote with Bhooj.	
„ A. Polehampton - -	500 - -	Kirkee - - -	Acting.
„ J. H. T. Blunt, M.A. -	292 10 8	Europe - - -	Sick certificate.
„ W. Jones - - -	500 - -	Puna, St. Paul's -	Acting at St. Paul's and at Gorpoorie.
„ F. L. Sharpin, M.A. -	500 - -	Bombay - - -	Garrison Chaplain visiting Butcher's Island when troops there.
„ W. J. Pfennell, M.A. -	500 - -	Haidarabad, Sind.	
„ G. B. Streeton, M.A. -	500 - -	Kurrachi - - -	Visiting Manora and Ghizree.
„ G. B. Anderson, B.A. -	250 - -	Europe - - -	Sick certificate.
„ J. Higgins - - -	500 - -	Nasirabad - - -	Visiting Neemuch, Ajmere, and other stations.
„ C. Kirk, M.A. - - -	292 10 8	Europe - - -	Sick certificate.
„ W. Clark, M.A. - -	500 - -	Kurrachi - - -	Joint Chaplain.
„ C. F. H. Johnston, M.A. -	292 10 8	Europe - - -	Sick certificate.
„ P. H. LeFeuvre, B.A. -	292 10 8	Europe - - -	- ditto.
„ A. G. Cane, M.A. - -	500 - -	Ahmedabad - -	Visiting Surat and dependent Stations.

No. 2.

STATEMENT showing the Strength of EUROPEAN TROOPS at each STATION in the BOMBAY PRESIDENCY.

STATIONS.	Commissioned Officers, all Ranks.	Unattached List, all Ranks.	British Corps, Non-commissioned Officers and Men.	Total, all Ranks.
Puna Division:				
Puna	190	48	2,043	2,281
Kirkee	31	12	438	481
Ahmadnagar	30	7	609	646
Sholapur	7	2	–	9
Asirgarh	8	2	130	140
Sattara	14	8	209	231
Malligaum	9	1	–	10
Dhulia	9	–	–	9
Sirur	6	–	–	6
Poorundhur	3	6	27	36
Northern Division:				
Ahmedabad	32	9	41	182
Deesa	46	3	932	981
Mount Aboo	4	4	104	112
Baroda	7	–	24	31
Surat	8	–	–	8
Rajcote	10	–	1	11
Bhooj	7	–	–	7
Dwarka	1	–	–	1
Mhow Division:				
Mhow	71	17	1,501	1,589
Indore	7	–	87	94
Mhow Division—*contd.*				
Augur	3	–	–	3
Mahidpur	6	–	–	6
Neemuch	34	9	472	515
Nasirabad	40	5	696	741
Bombay District:				
Bombay	77	66	31	174
Colaba	15	10	478	503
Deolalee	6	11	19	36
Tanna	5	1	–	6
Sind District:				
Kurrachi	47	17	777	841
Ghizree	3	3	31	37
Haidarabad	21	14	398	433
Jacobabad	21	–	–	21
Belgaum District:				
Belgaum	53	18	1,066	1,137
Kolhapur	8	–	–	8
Dharwar	10	–	–	10
Aden Field Force:				
Aden	54	22	706	782

No. 3.

STATEMENT showing the Number of EUROPEAN and EURASIAN POPULATION at each STATION under the BOMBAY PRESIDENCY.

STATION.	EUROPEANS.			EURASIANS.			TOTAL.
	Males.	Females.	Children.	Males.	Females.	Children.	
Deesa	30	4	–	–	1	–	45
Sattara	43	31	–	20	8	–	102
Mahableshwur	32	31	–	36	11	–	110
Surat	–	–	–	–	–	–	145
Ahmedabad	–	–	–	–	–	–	125
Ajmere	33	21	9	9	6	13	91
Nasirabad	21	12	22	–	–	–	55
Oodeypur	4	4	4	–	–	–	12
Aboo	10	11	66	–	–	2	89
Sholapur	–	52	–	–	58	–	110
Ahmadnagar	–	–	–	–	–	–	89
Asirgarh	–	138	–	–	30	–	168
Belgaum	–	–	–	–	–	–	158
Deolalee	–	–	–	–	–	–	3
Kaladgi	–	8	–	–	7	–	15
Karwar	–	16	–	–	5	–	21
Aden	165	44	–	92	52	–	353
Broach	–	28	–	–	2	–	30
Dharwar	–	–	–	–	–	–	131
Tanna	–	26	–	–	5	–	31
Bandora	–	92	–	–	–	–	92
Dapuli	–	–	–	–	–	–	18
Ratnagiri	–	–	–	–	–	–	31
Puna	–	633	–	–	91	–	754
Kirkee	–	46	–	–	–	–	46
Khandala	–	2	–	–	–	–	2
Poorundhur	–	7	–	–	–	–	7
Baroda	32	20	12	13	20	16	113
Bombay	–	7,253	–	–	2,352	–	9,605
Colaba	–	1,504	–	–	237	–	1,741
Byculla	–	495	–	–	293	–	788
Rajkot	–	17	–	–	2	–	19
Bhooj	–	5	–	–	–	–	5
Kurrachi, Manora, Clifton and Keamaree.	430	241	–	190	133	–	994
Haidarabad	–	–	–	–	–	–	38
Shikarpur	4	5	–	4	5	–	18
Sukkur	47	26	–	37	30	–	140
Upper Sind Frontier.	–	1	–	–	6	–	7

No. 4.

STATEMENT showing the Number of each CHURCH of ENGLAND CLERGYMAN, who, not being a Government Chaplain, receives a Portion of his Salary from Government, with Particulars as to the Nature of each Charge, &c.

NAME.	Salary.		Nature of Charge.	Society.	REMARKS.
	Government.	Other Source.			
	Rs.	*Rs. a. p.*			
Rev. T. Corfield - -	150	163 - -	Railway Chaplain, Great Indian Peninsula Railway Company, for Egutpoora, and stations along the line.	Additional clergy of Society for Propagation of the Gospel.	*Rs.* 1,540 per annum interest of Fund by subscriptions of shareholders of Company.
Rev. C. Gilder - -	150	147 - -	Trinity Church, Sonapur, Bombay District, of Europeans and Eurasians in service of Government and others; also schools of Indo-British Institution.	Society for Propagation of the Gospel.	*Rs.* 40. 5 *a.* 4 *p.* Endowment Fund for Pastor of Trinity Church, rest of 147 rupees from Society for Propagation of the Gospel.
Rev. H. Harpur - -	200	196 10 8	St. Peter's Church, Mazagon, Bombay District, of Europeans and Eurasians in service of Government and Peninsula and Oriental Company, and other employments Is also Cemetary Chaplain, and in spiritual charge of the gaols.	Additional Clergy of Society for Propagation of the Gospel.	*Rs.* 50 extra conveyance allowance from Government for Sewree Cemetery.
Rev. H. Reed - -	150	160 - -	Kotree, Sind, station terminus of Sind Railway and starting point of Indus steamers, Government servants, and others employed in Railway and Flotilla companies.	- - ditto - ditto -	*Rs.* 80 from each of the companies.

No. 5.

STATEMENT showing the Number of EUROPEAN TROOPS, and of the EUROPEAN, EURASIAN, and AMERICAN CIVIL POPULATION who are MEMBERS of the CHURCH of ENGLAND, or Attendants on its Services; also the Number of the Civil Population who are in the Service of Government, and who are European or British-born Subjects or Americans, and their Families, under each Head, the Number of Women and Children, being separately shown.

STATION.	(A.) Number of European Troops who are Members of the Church of England, or Attendants on the Services of that Church, and of the Women and Children belonging to them.				(B.) Number of European, Eurasian, and American Civil Population who are Members of the Church of England, or Attendants on its Services.				(C.) Number of the Civil Population attending the Services of the Church of England, who are Servants of the Government, and of their Families.				(D.) Number out of the Total Civil Population who are European or British born Subjects, or Americans, and of their Families under each head, the Number of Women and Children being separately shown.			
	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.
Bombay, with Matheran and Tanna.	10	7	10	27	700	250	400	1,350	- No returns.				-	-	-	-
Byculla - - - -	13	3	173	189	- No returns.				-	-	-	-	-	-	-	-
Colaba - - - -	300	20	58	387	87	75	131	293	64	53	94	211	27	18	36	81
Mazagon - - - -	- No returns.			-	-	-	-	-	-	-	-	-	-	-	-	-
Sonapur - - - -	- None -			-	35	38	102	175	13	12	25	50	5	5	9	19
Aden - - - - -	600	47	53	700	37	11	23	71	15	9	23	47	- Unknown.			-
Ahmedabad, with Kaira -	188	48	53	289	37	22	28	89	30	18	23	71	17	9	8	34
Ahmednagar, with Seroor -	418	60	96	574	16	22	18	56	14	13	10	37	- No return.			-
Belgaum - - - -	857	78	134	1,069	59	41	60	160	54	39	59	152	47	16	18	81
Deesa, with Aboo - -	516	57	85	658	22	20	8	50	42	20	20	82	- No return.			-
Deolalee - - - -	257	54	98	409	1	-	-	1	4	-	-	4	- No return.			-
Haidarabad, Sind - -	302	22	27	351	No details		-	38	- No details		-	21	- No return.			-
Kirkee - - - -	323	37	59	419	4	3	6	13	4	3	6	13	4	3	6	13
Kurrachi - - - -	531	78	132	741	- No returns.			-	-	-	-	-	-	-	-	-
Neemuch - - - -	255	13	22	320	13	7	14	34	12	7	14	33	12	7	14	63
Nasirabad - - - -	387	13	51	451	17	7	6	30	11	4	2	17	7	1	1	9
Poona, with Poorandhur -	850	50	80	980	- No returns.			-	-	-	-	-	-	-	-	-
Sirpoorie, with Sholapur -	734	58	72	864	- No returns.			-	-	-	-	-	-	-	-	-
Thandalla and Lanowlie -	- None			-	80	50	70	200	- No statistics.			-	-	-	-	-
Rajcote, with Bhooj - -	- No returns.			-	-	-	-	-	-	-	-	-	-	-	-	-
Ratnagiri, with Carwar, Dharwar, and Dapuli.	- None -			-	23	8	13	44	23	8	13	44	22	7	10	39
Sattara, with Mahableshwur	151	14	14	179	35	20	20	75	35	20	20	75	- No return.			-
Surat - - - -	- No returns.			-	-	-	-	-	-	-	-	-	-	-	-	-
Sutpura, with Bhosawul -	- None -			-	53	41	39	133	7	6	3	16	7	6	3	16
Sotri, Sind - - -	- No returns.			-	-	-	-	-	-	-	-	-	-	-	-	-

No. 6.

STATEMENT showing the Number of EUROPEAN TROOPS of the EUROPEAN, EURASIAN, and AMERICAN CIVIL POPULATION who are Members of the PRESBYTERIAN CHURCH, or are Attendants on its Services; also showing the Number of the Civil Population who are in the Service of Government and who are European or British-born Subjects or American, and their Families.

STATION.	(A.) Number of European Troops with their Wives and Children attending Presbyterian Church Services.				(B.) Number of European, Eurasian, and American Civil Population who are Members of the Presbyterian Church, or Attendants on its Services.				(C.) Number of the Civil Population attending Presbyterian Church Service who are Servants of Government, and of their Families.				(D.) Number out of the Total Civil Population who are European or British-born Subjects or Americans, and of their Families.			
	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.
Bombay - - - -	61	38	51	150	414	151	234	799	82	40	59	181	62	29	39	130
Puna - - - -	110	15	32	157	30	20	54	104	22	12	11	45	18	5	9	32
Kirkee - - - -	64	11	13	88	None.	–	–	–	–	–	–	–	–	–	–	–
Kurrachi* - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Belgaum - - - -	51			69	5	18		23	2	9		11	2	9		11

* The Senior Chaplain, Church of Scotland, gives the total number of Presbyterians at Kurrachi, including the military and civil, at 312 men, 53 women, 113 children—total, 478. He adds, "As the Chaplain at Kurrachi died in November 1871, and the vacancy has not yet been filled up, I have been obliged to take these from the returns last furnished by the Rev. Mr. Middleton.

No. 7.

STATEMENT of ROMAN CATHOLIC PRIESTS who are paid in the MILITARY DEPARTMENT of the BOMBAY PRESIDENCY.

STATION.	Name of the Priest.	Monthly Pay.	Monthly Allowance for Lighting, and other Expenses.	Monthly Allowance for Out-post for Lighting, &c.	Monthly Travelling Expenses.	Monthly Chapel Rent.	Monthly Horse Allowance.	Monthly Percentage for Dearness of Grain.	REMARKS.
		Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*	
Ahmednagar -	G. Miller - -	200	23	–	–	–	–	–	(*a*) For Steamer Point, 10 rupees. For Isthmus.
Aden - - -	F. L. D. Gonzaga	200	23	(*a*) 20	(*b*) 75	–	*30 – –	–	(*b*) To and from Steamer Point.
Ahmedabad -	P. F. D'Oliveira	150	23	–	–	–	–	–	* Government Resolution, No. 3239 of 24th July 1872.
Belgaum - -	P. W. Adams -	200	23	–	–	–	–	–	
Colaba, Bombay -	B. Hafely -	200	23	–	–	–	–	–	
Deesa - -	P. Salinger -	200	23	–	(*c*) 50	–	–	10 – –	(*c*) To and from Aboo.
Deolalee - -	D. F. Pereira -	150	23	–	–	–	–	7 8 –	Debited to Government of India.
Haidarabad -	J. Nuckel -	150	23	–	–	–	–	–	
Kirkee - -	G. Wenniger -	150	23	–	–	–	–	–	
Kurrachi - -	G. T. Bridges -	150	23	–	–	–	–	–	(*d*) For Indore. (*e*) To and from Indore.
Mhow - -	F. Polycarp -	200	23	(*d*) 10	(*e*) 50	†32 4 –	–	–	† Government Resolution, No. 3189 of 10th September 1860.
	F. Odorick -	150							
Neemuch - -	J. Doogan -	150	23	–	–	–	‡30 – –	–	‡ Government Resolution, No. 4490 of 27th October 1871.
Nasirabad - -	F. Paul - -	159	23	–	–	–	–	–	(*f*) For Poorundhur.
Puna - -	H. Depelchin -	200	23	(*f*) 10	(*g*) 25	–	–	–	(*g*) Eight annas a mile to and from Poorundhur.
	W. Althoff -	150							
Sattara - -	J. B. M. D'Souza	150	23	–	–	§25 – –	–	–	§ Government Resolution, No. 196 of 9th August 1867.

Note.—Pay to priests on 200 rupees and 150 rupees is admitted under paras. 2, 3, 5, 6 and 7 of G. G. O. No. 462 of 1871.
Travelling allowance is admitted under paras. 22 and 23 of G. G. O. No. 462 of 1871
Lighting allowance 23 rupees per month for each station, *vide* para. 30 of 1871.
Ditto - ditto 10 rupees per month for each out-post, *vide* para. 31 of 1871.
Percentage for dearness of grain admitted under Government Resolution of 19th October 1864, No. 134, Ecclesiastical Department.

(Ecclesiastical—March 1876.)

No. 287 V. S., dated Calcutta, the 10th July 1873.

From *H. J. S. Cotton*, Esq., Officiating Under Secretary to the Government of Bengal, to the Secretary to the Government of India.

In continuation of my letter, No. 88 V. S., dated the 29th May last, I am directed to submit to the Government of India a copy of a Return received from the Reverend Father Accursio, Roman Catholic Chaplain at Darjeeling, showing the number of European troops and civil population at that station, who are Roman Catholics, or attendants on the services of a Roman Catholic Priest.

RETURN showing the Number of European Troops and Civil Population at the Station of *Darjeeling*, who are Roman Catholics, or Attendants on the Services of a Roman Catholic Priest.

(A.) Number of European Troops at the Station of Darjeeling who are Roman Catholics, or Attendants on the Services of a Roman Catholic Priest.		(B.) Number of European, Eurasian, and American Civil Population who are Roman Catholics or Attendants on the Services of a Roman Catholic Priest.		(C.) Number of those in Column (B.) who are in the Service of Government, and their Families.		(D.) Number of those in Column (C.) who are European British-born Subjects or Americans, and their Families.	
TROOPS.	Women and Children belonging to them.	Men.	Women and Children.	Men.	Women and Children.	Men.	Women and Children.
No. 3 Battery, 5th Brigade, Royal Artillery and Convalescent Depôt. 56	7	15	107	2	15	1	1
Officers - - - - - 2	1	—	—	—	—	—	—
Commissariat Department - 3	15	—	—	—	—	—	—

N.B.—The number relatively in excess of women and children under Column (B.) is owing to the Loretto School Institution of Darjeeling.

I certify that the above figures are to the best of my knowledge correct.

Darjeeling, 19 June 1873.

F. Accursio,
Roman Catholic Chaplain

(Ecclesiastical—March 1876.)

No. 1857 A., dated Naini Tal, the 25th July 1873.

From *C. A. Elliott*, Esq., Secretary to the Government of the North Western Provinces, to the Secretary to the Government of India.

IN continuation of my letter, No. 1670 A, dated the 7th July 1873, I am directed to forward, for the information of His Excellency the Viceroy and Governor General in Council, the accompanying amalgamated Statements Nos. 1. and 2., repared in this office, showing the particulars called for in the letter from your office, No. 385, dated the nd November 1872, regarding the charges of Presbyterian Chaplains and Ministers and of Roman Catholic Chaplains nd Priests in the North-Western Provinces who are now receiving aid from Government.

2. I am also to forward a separate Statement (No. 3). containing similar informations regarding stations which re not under this Government, but are within the diocese of the Roman Catholic Bishop of Agra.

3. I am to add that the Bishop states that some of the priests addressed on the subject have not as yet submitted heir returns, but that as soon as they are received they will be transmitted to Government. A supplementary statement will then be submitted to the Government of India.

No. 1.

TATEMENT showing the Particulars called for by the Government of India regarding the Charges of PRESBYTERIAN CHAPLAINS and PRESBYTERIAN MINISTERS now receiving Aid from Government.

1.	2. Number of European Troops who are Presbyterians or Attendants on the Presbyterian Services, and of the Women and Children belonging to them.			3. Total Number of European, Eurasian, and American Civil Population who are Presbyterians or Attendants on Presbyterian Services.			4. Number out of those shown in Column 3 who are in the Service of Government and of their Families.			5. Number out of those shown in Column 4 who are European British-born Subjects or Americans, and of their Families.			6.	7.
STATION.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Nature of Charge.	Amount of Aid given.
														Rs. a. p.
uckrata - - -	824	71	137	7	7	11	7	7	11	6	7	11	Charge held by Assistant Chaplains of the 92nd Highlanders.	*500 - -
eerut† - - -	70	12	19	18	18	33	11	11	15	10	8	14	Charge held by a Minister of the Church of Scotland, Additional Clergy Society, Bengal.	‡150 - -
wnpore - - -	42	2	9	59	24	30	4	4	7	1	-	-		
lahabad - - -	75	14	18	108	100	191	35	34	93	35	34	93		
orar - - - -	327	30	43	1	1	4	1	1	4	1	1	4	Charge held by a Chaplain of the Church of Scotland.	800 - -
cknow - - -	133	23	41	11	10	10	3	2	3	3	2	3		
nares - - -	26	3	11	5	1	3	-	-	-	-	-	-		

* In addition to this amount Assistant Chaplain draws 75 rupees per mensem for "tentage" so long as he is attached to a regiment.

† During the winter months when families, who resort to the hills for the hot weather and rains, return to the station, the attendance is larger. The esbyterian Minister states that Delhi, which has 48 Presbyterians, is an out-station of Meerut visited by him, and that Roorkee, where there are 87, ght also be included in his charge.

‡ The Colonial Committee of the General Assembly, with the aid of the Church of Scotland Additional Clergy Society, make up the salary of the Meerut regyman to 500 rupees per mensem.

C. A. Elliott,
Secretary to the Government, North Western Provinces.

Naini Tal, 25 July 1873.

No. 2.

STATEMENT showing the Particulars called for by the Government of India regarding the Charges of ROMAN CATHOLIC CHAPLAINS and ROMAN CATHOLIC PRIESTS now receiving Aid from Government.

1. STATION.	2. Number of European Troops who are Roman Catholics or Attendants on the Roman Catholic Services, and of the Women and Children belonging to them.			3. Total Number of European, Eurasian, and American Civil Population who are Roman Catholics or Attendants on Roman Catholic Services.			4. Number out of those shown in Column 3 who are in the Service of Government, and of their Families.			5. Number out of those shown in Column 4 who are European British-born Subjects or Americans, and of their Families.			6. Nature of Charge.	7. Amount of Aid given.		
	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.		*Rs.*	*a.*	*p*
Jhansi	174	31	54	5	3	8	4	2	8	2	1	3	Charge held by a Chaplain	150	–	
Chunar	29	9	14	49	64	34	48	–	–	40	–	–	- ditto - ditto -	150	–	
Benares	156	30	60	10	11	12	2	–	–	1	–	–	- ditto - ditto -	150	–	
Meerut:																
As given by Military Authorities, Meerut.	359	66	129	57	49	64	28	22	28	19	13	25	- ditto - ditto -	200	–	
As given by Roman Catholic Chaplain, Meerut.	379	89	148													
Cawnpore	206	38	77	22	22	28	3	3	3	2	3	3	Charge held by a head Chaplain and one assistan Chaplain.	*200	–	
Allahabad	297	56	132	130	136	170	41	44	72	30	32	60	Charge held by a head Chaplain and two assistant Chaplains.	*200	–	
Agra	412	79	134	23	20	39	14	8	19	14	8	19	Charge held by a Chaplain	200	–	
Naini Tal	68	10	20	15	7	8	11	6	8	6	3	8	Charge held by one Chaplain.	200	–	
Ranikhet	151	23	52	6	4	5	6	4	5	3	4	5	- ditto - ditto -	150	–	

* Drawn by the head Chaplain.

Naini Tal, 25 July 1873.

C. A. Elliott, Secretary to the Government, North Western Provinces.

No. 3.

STATEMENT showing certain Particulars regarding the Charges of ROMAN CATHOLIC CHAPLAINS and ROMAN CATHOLIC PRIES now receiving Aid from Government at certain Stations not under the Control of the Government of the North Western Provinc

1. STATION.	2. Number of European Troops who are Roman Catholics or Attendants on the Roman Catholic Services, and of the Women and Children belonging to them.			3. Total Number of European, Eurasian, and American Civil Population who are Roman Catholics or Attendants on Roman Catholic Services.			4. Number out of those shown in Column 3, who are in the Service of Governmen t and of their Families.			5. Number out of those shown in Column 4 who are European British-born Subjects or Americans, and of their Families.			6. Nature of Charge.	7. Amount of Aid given		
	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.		*Rs.*	*a.*	*p*
Ferozepur	371	57	103	14	12	21	9	10	21	6	8	13	Charge held by a Chaplain	200	–	
Nusseerabad	245	42	84	4	2	2	4	2	2	2	2	2	- ditto - ditto -	150	–	
Amballa	170	33	42	7	10	13	6	5	11	3	1	3	- ditto - ditto -	200	–	
Multan	360	48	103	9	7	17	6	4	11	4	3	7	- ditto - ditto -	200	–	
Morar, Gwalior	462	60	85	8	4	5	8	4	5	3	2	4	- ditto - ditto -	200	–	
Peshawar	726	93	186	19	4	4	8	2	4	8	2	4	- ditto - ditto -	200	–	
Nowshera*	211	16	27	1	–	–	1	–	–	1	–		- ditto - ditto -	150	–	
Subathoo (Sanitarium)	374	63	110	1	–	8	–	–	–	1	–	8	- ditto - ditto -	150	–	
Jullundur	151	28	33	6	9	22	5	9	22	5	9	22	- ditto - ditto -	200	–	
Delhi	209	30	74	33	29	47	22	22	38	–†	–	–	- ditto - ditto -	150		
Sialkot	420	59	89	11	19	44	4	9	14	3	3	4	- ditto - ditto -	200	–	
Mhow (Central India)	413	69	106	340	57	83	239	–	[illegible]	9	7	11	- ditto - ditto -	200	–	

(*) 257 more Roman Catholics of the 58th Regiment are at the Cherut and Attock out-posts.
† No means of knowing the number of British-born subjects.

Naini Tal, 25 July 1873.

C. A. Elliott, Secretary to the Government, North Western Provinces.

No. 3679, dated Lucknow, the 1st August 1873.

From Captain *N. M. T. Horsford*, Junior Secretary to the Chief Commissioner of Oudh, to the Officiating Under Secretary to the Government of India.

WITH reference to your letter, No. 387, dated 2nd November last, I am directed to forward the Return therein called for regarding the charges of Chaplains in Oudh.

STATEMENT showing the Particulars called for by the Government of India regarding the Charges of CHAPLAINS in *Oudh*.

NAME OF STATION.	Number of Chaplains.	Amount received from Government.	(A.) Number of Troops who are Presbyterians or Attendants on Presbyterian Services, and of the Women and Children belonging to them.				(B.) Total Number of European, Eurasian, and American Civil Population, who are Presbyterians or Attendants on Presbyterian Services.				(C.) Number out of the Total (B.) who are in the Service of Government, and of their Families.				(D.) Number out of those shown under (C.) who are European British-born Subjects or Americans, and of their Families.												REMARKS.
															British-born European Subjects.				Americans.				Total.				
			Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	
		Rs.																									
Lucknow	–	–	133	23	41	197	11	10	10	31	3	2	3	8	3	2	3	8	–	–	–	–	3	2	3	8	This return was made up for the Government, North Western Provinces, by Rev. J. Williamson. He remarks: "The military return is no doubt correct, but I feel confident that the civil returns very much understated the real number in the civil station." A Chaplain visits this station at rare intervals. No information received as to aid given by Government.
ROMAN CATHOLICS																											
Lucknow	2	350 per mensem.	748	130	173	1,051	92	155	41	288	14	8	25	47	2	1	–	3	–	–	–	–	2	1	–	3	There are two priests stationed here who receive respectively 200 rupees and 150 rupees per mensem. They have charge of cantonments, military prison in the civil station and the Fort at Machee Bhawan.
Fyzabad	1	150 per mensem.	307	65	72	444	8	11		14	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Sitapur	1	150	216	35	70	321	3	3	9	15	3	3	9	15	3	3	9	15	–	–	–	–	3	3	9	15	
CHURCH OF ENGLAND.																											
Lucknow, civil	1	830 per mensem.	87	16	35	138	360	240	200	800	280	–	–	280	260	–	–	260	–	–	–	–	260	–	–	260	The figures have been approximately given by the civil Chaplains. The figures under (A.) are the men in the military prison in the civil lines, and in the Fort at Machee Bhawan. The Chaplain visits Rai Bareli every second month.
Lucknow, cantonments	1	500	1,713	146	229	2,088	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Fyzabad	1	800	564	63	74	701	26	20		46	16	14		30	11	11		22	–	–	–	–	11	11		22	The Chaplain visits Sultanpur and Pertabgarh once in four months.
Sitapur	1	800	400	37	76	513	4	1	–	5	4	–	–	4	1	–	–	1	–	–	–	–	1	–	–	1	

(Ecclesiastical—March 1876.)

No. 2126 A., dated Naini Tal, the 27th August 1873.

From *C. A. Elliott,* Esq., Secretary to the Government of the North Western Provinces, to the Secretary to the Government of India.

IN continuation of my letter, No. 1,857 A., dated 25th July, I am directed to forward a statement in the prescribed form, showing the number of Roman Catholics at the stations of Moradabad, Bareilly, Shahjehanpur, Landour, and Chukrata.

STATEMENT showing the Number of ROMAN CATHOLICS at the Stations of *Moradabad, Bareilly, Shahjehanpur, Landour,* and *Chuckrata.*

STATION.	Number of European Roman Catholic Troops.			Number of European, Eurasian, and American Roman Catholic Civilians.			Number of those shown in Column 3, who are in the Service of Government.			Number of those in Column 4, who are European British-born or American Subjects.			Nature of Charge.	Amount of Aid given by Government.
	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.		
														Rs.
Moradabad	20 to 30	2	3	1	1	–	1	1	–	1	–	–	Visited by Roman Catholic Chaplain of Bareilly.	–
Bareilly	171	22	43	10	5	5	8	4	5	6	3	–	Roman Catholic Chaplain.	200
Shahjehanpur	43	9	19	5	5	14	5	5	14	11	11	11	Visited by Roman Catholic Chaplain of Bareilly.	–
Landour	98	3	7	9	4	6	9	4	6	–	–	96*	Roman Catholic Chaplain of Landour.	150
Chuckrata	47	7	8											
TOTAL	389	43	80	25	15	25	23	14	25	18	14	107		

* School boys.

(Ecclesiastical—March 1876.)

No. 1339—14, dated Rangoon, the 3rd September 1873.

From Major *H. T. Duncan,* Officiating Secretary to the Chief Commissioner of British Burma, to the Secretary to the Government of India.

REFERRING to your letters marginally noted, I am directed to submit the returns called for, showing the number of European troops, and European, Eurasian, and American civil population, who are members or attendants on the Church of England, or are Presbyterians or Roman Catholics attending the services of these churches under the charge of a minister, chaplain, or priest, receiving aid from Government.

No 376, dated 2nd November 1872.
No. 389 of the same date.

2. The returns which refer to the civil population are necessarily only approximate, and in the case of those for the town of Rangoon especially so, as the Chaplain of the Church of England in charge has declared his inability to give any assistance in computing the numbers of Europeans who are members of that Church, or who attend his services.

STATEMENT (A.)

NUMBER of CHRISTIANS belonging to the EUROPEAN TROOPS stationed in *British Burma.*

CHURCH OF ENGLAND.			ROMAN CATHOLICS.			PRESBYTERIANS.			TOTAL.		
Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.
1,112	187	328	884	145	324	184	11	23	2,180	343	675

N.B.—Church of England Chaplains – – – – – 4
Roman Catholic Chaplains – – – – – 3
Presbyterian Ministers – – – – – –
TOTAL – – – 7

STATEMENT (B.)

NUMBER of CHRISTIANS, EUROPEANS, EURASIANS, or AMERICANS belonging to the CIVIL POPULATION of BRITISH BURMA, under the Charge of CHAPLAINS who receive Remuneration directly or indirectly from Government.

	CHURCH of ENGLAND.			ROMAN CATHOLICS.			PRESBYTERIANS.			TOTAL.		
	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.
Toungoo	20	10	17	1	–	1	–	–	–	21	10	18
Moulmein	188	196	166	–	–	–	–	–	–	188	196	166
Tavoy	5	5	9	–	–	–	–	–	–	5	5	9
Mergui	5	1	5	–	–	–	–	–	–	5	1	5
Shwé-gyeen	21	9	28	–	–	–	–	–	–	21	9	28
Akyab District	79	35	33	–	–	–	–	–	–	79	35	33
Prome District	18	5	2	–	–	–	–	–	–	18	5	2
Rangoon District	5	2	3	–	–	–	–	–	–	5	2	3
Bassein District	26	10	26	–	–	–	–	–	–	26	10	26
Myanoung	–	–	–	–	–	–	–	–	–	–	–	–
Thayet	22	7	10	–	–	–	–	–	–	22	7	10
Rangoon Town	100	110	130	–	–	–	–	–	–	100	110	130
Mandalay	35	7	12	–	–	–	–	–	–	35	7	12
TOTAL	524	397	441	1	–	1	–	–	–	525	397	442

STATEMENT (C.)

NUMBER out of Total (B.) who are in the Service of Government and their Families.

	CHURCH of ENGLAND.			ROMAN CATHOLICS.			PRESBYTERIANS.			TOTAL.		
	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.
Moulmein	52	33	70	–	–	–	–	–	–	52	33	70
Tavoy	19	5	9	–	–	–	–	–	–	19	5	9
Mergui	5	1	5	–	–	–	–	–	–	5	1	5
Shwé gyeen	15	6	24	–	–	–	–	–	–	15	6	24
Toungoo	16	8	9	–	–	–	–	–	–	16	8	9
Akyab District	55	26	29	–	–	–	–	–	–	55	26	29
Prome District	13	5	2	–	–	–	–	–	–	13	5	2
Rangoon District	5	2	3	–	–	–	–	–	–	5	2	3
Bassein District	14	5	13	–	–	–	–	–	–	14	5	13
Myanoung	–	–	–	–	–	–	–	–	–	–	–	–
Thayet	17	5	9	–	–	–	–	–	–	17	5	9
Rangoon Town	50	60	65	–	–	–	–	–	–	50	60	65
Mandalay	5	1	–	–	–	–	–	–	–	5	1	–
TOTAL	266	137	238	–	–	–	–	–	–	266	137	238

STATEMENT (D.)

NUMBER out of those shown under (C.) who are European British-born Subjects or Americans, and of their Families.

	CHURCH of ENGLAND.			ROMAN CATHOLICS.			PRESBYTERIANS.			TOTAL.		
	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.	Men.	Women.	Children.
Moulmein	52	33	70	–	–	–	–	–	–	52	33	70
Tavoy	4	3	8	–	–	–	–	–	–	4	3	8
Megrui	5	–	5	–	–	–	–	–	–	5	–	5
Shwé-gyeen	5	1	–	–	–	–	–	–	–	5	1	–
Toungoo	15	8	9	–	–	–	–	–	–	15	8	9
Akyab District	44	17	14	–	–	–	–	–	–	44	17	14
Prome District	13	5	2	–	–	–	–	–	–	13	5	2
Rangoon District	5	2	3	–	–	–	–	–	–	5	2	3
Bassein District	8	5	6	–	–	–	–	–	–	8	5	6
Myanoung	–	–	–	–	–	–	–	–	–	–	–	–
Thayet	17	5	9	–	–	–	–	–	–	17	5	9
Rangoon Town	50	60	65	–	–	–	–	–	–	50	60	65
Mandalay	2	–	–	–	–	–	–	–	–	2	–	–
TOTAL	220	159	191	–	–	–	–	–	–	220	159	191

(Ecclesiastical—March 1876.)

No. 4103, dated Lahore, the 3rd November 1873.

From *T. H. Thornton*, Esq., D.C.L., Secretary to the Government of the Punjab, to the Secretary to the Government of India.

I AM desired by the Honourable the Lieutenant Governor to forward the two accompanying statements whic contain all the information that has been collected with regard to the number of Presbyterians and Roma Catholics, &c., in the Province, called for in your letter of the 2nd November 1872, No. 386.

2. These returns are doubtless not very complete, but as they contain all the information which district office can apparently supply, his Honour was unwilling to delay further in giving a reply on the subject.

3. I am to express regret for the delay which has occurred in replying to your letter; the delay is due to repli not being received from several district officers.

STATEMENT showing the Information called for in Home Department Circular No. 386, dated the 2nd November 1872, as regards PRESBYTERIANS.

DIVISION.	DISTRICT.	(A.) Number of European Troops who are Presbyterians or Attendants on the Presbyterian Services, and of the Women and Children belonging to them.				(B.) Total Number of European, Eurasian, and American Civil Population, who are Presbyterians or Attendants on Presbyterian Services.				(C.) Number out of the Total (B.) who are in the Service of the Government, and of their Families.				(D.) Number out of those shown under (C.) who are European British-born Subjects or Americans, and their Families.				REMARKS.
		Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	
Delhi	Delhi	60	21	–	81	–	–	–	–	–	–	–	–	–	–	–	–	There is no Presbyterian Chaplain at this station; the Baptist Missionary provides services for the Presbyterians.
	Gurgaon	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	There are no troops, nor there a Church of England clergyman in this district.
	Karnaul	–	–	–	–	23	15	19	57	23	15	19	57	20	11	19	50	Ditto - ditto.
Hissar	Hissar	–	–	–	–	1	–	–	1	1	–	–	1	1	–	–	1	There is no Presbyterian Chaplain stationed in this division.
	Rohtak	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Sirsa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Umballa	Umballa	586	73	120	779	33	24	19	76	22	9	11	42	16	5	7	28	This return shows the military population as it stood on 1st January 1873, and the civil population as it stood on 1st March 1873. In the civil returns the residents of the Umballa civil station are included. There is no Presbyterian minister, not being Chaplain, who receives any portion of his remuneration from Government.
	Ludhiana	–	–	–	–	–	4	4	8	–	–	–	–	–	–	–	–	There are at present one American, one English, and one German Missionary at Ludhiana; none are in the service of Government, and none receiving remuneration from Government directly or indirectly.
	Simla	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Jullundur	Jullundur	45	7	12	64	1	1	–	2	–	–	–	–	–	–	–	–	
	Hushiarpur	–	–	–	–	–	4	–	4	–	–	–	–	–	–	–	–	
	Kangra	6	–	–	6	5	–	–	5	–	–	–	–	–	–	–	–	
Amritsar	Amritsar	23	2	2	27	2	3	2	7	1	2	2	5	1	2	2	5	
	Gurdaspur	12	2	4	18	3	3	5	11	2	–	–	2	1	1	1	3	
	Sialkot	105	8	14	127	3	2	–	5	3	2	–	5	3	2	–	5	
Lahore	Lahore	90	10	16	116	2	–	–	2	–	–	–	–	–	–	–	–	
	Gujranwala	–	–	–	–	10	5	10	25	–	–	–	–	–	–	–	–	
	Ferozepore	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Rawal Pindi	Rawal Pindi	111	8	13	132	8	–	–	8	1	–	–	1	1	–	–	1	There being no Presbyterian chapel, all attend the service of the Church of England.
	Jhelum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Gujrat	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Shahpur	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Mooltan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Mooltan																		Presbyterians are included in the number of those who attend the service of the Church of England.
	Jhang	–	–	–	–	1	1	2	4	1	1	2	4	1	1	2	4	No Presbyterian Chaplains holding charges or receiving aid from Government.
	Montgomery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Mozuffergarh	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Derajat	Dera Ismail Khan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Dera Ghazi Khan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Bannu	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Peshawar	Peshawar	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Hazara	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Kohat	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
		1,038	131	181	1,350	92	62	61	215	54	29	34	117	44	22	31	97	

E. W. Trotter,
Assistant Secretary to the Government of the Punjab

STATEMENT showing the Information called for in Home Department Circular No. 386, dated 2nd November 1872, as regards ROMAN CATHOLICS.

DIVISION.	DISTRICT.	(A.) Number of European Troops who are Roman Catholic Attendants on the Roman Catholic Services, and of the Women and Children belonging to them.				(B.) Total Number of European, Eurasian, and American Civil Population who are Roman Catholics or Attendants on Roman Catholic Services.				(C.) Number out of the Total (B) who are in the Service of the Government and of their Families.				(D.) Number of those shown under (C.) who are European British-born Subjects or Americans, and of their Families.				REMARKS.
		Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	
Delhi	Delhi	175	25	61	261	33	29	47	109	22	7	9	38	–	–	–	–	There is a Roman Catholic Chaplain receiving remuneration from Government. He is unable to say how many of those shown under (C.) are European British subjects.
	Gurgaon	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Karnaul	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Hissar	Hissar	–	–	–	–	2	2	4	8	2	2	4	8	2	2	4	8	There is no Roman Catholic Chaplain or Priest in this division.
	Rohtak	–	–	–	–	1	1	2	4	1	1	2	4	1	1	2	4	
	Sirsa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Umballa	Umballa	160	40	40	240	7	9	21	37	6	8	17	31	5	7	15	27	There is no Roman Catholic Priest, not being a Chaplain, who receives any portion of his remuneration from Government.
	Ludhiana	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	There is no Roman Catholic Chaplain or Priest here.
	Simla	840	142	229	1,211	5	1	4	10	5	1	4	10	5	1	4	10	There is no Roman Catholic Chaplain in Simla receiving any remuneration from Government.
Jullundur	Jullundur	142	22	24	188	6	9	–	15	5	9	–	14	5	9	–	14	The Chaplain receives his remuneration directly from Government.
	Hushiarpur	–	–	–	–	2	3	9	14	2	3	9	14	2	2	4	8	The Roman Catholic Chaplain from Jullundur pays a visit periodically.
	Kangra	10	2	2	14	2	1	1	4	1	–	–	1	1	–	–	1	
Amritsar	Amritsar	68	8	8	84	1	1	–	2	1	1	–	2	1	1	–	2	
	Gurdaspur	35	–	–	35	5	4	8	17	4	–	–	4	2	–	–	2	
	Sialkot	467	55	123	645	1	–	–	1	1	–	–	1	1	–	–	1	
Lahore	Lahore	363	54	85	502	93	59	58	210	58	35	25	118	25	14	14	53	
	Ferozepore	150	70	60	280	–	–	–	–	–	–	–	–	–	–	–	–	
	Gujranwala	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Rawal Pindi	Rawal Pindi	690	69	111	870	1	–	7	8	1	–	7	8	1	–	7	8	
	Jhelam	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Gujrat	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Shahpur	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Mooltan	Mooltan	360	48	103	511	9	7	17	33	6	4	11	21	4	3	7	14	No Roman Catholic Chaplain holding charge or receiving aid from Government.
	Jhang	–	–	–	–	1	1	2	4	1	1	2	4	1	1	2	4	
	Montgomery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Mozaffergarh	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Derajat	Dera Ismail Khan	50	–	–	50	–	–	–	–	–	–	–	–	–	–	–	–	
	Dera Ghazi Khan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Bannu	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Peshawar	Peshawar	780	99	186	1,065	–	–	–	–	12	8	21	41	2	1	–	3	
	Hazara	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	Kohat	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
		4,290	634	1,032	5,956	169	127	180	476	128	80	111	319	58	42	59	159	

E. W. Trotter,
Assistant Secretary to the Government of the Punjab.

EAST INDIA (NUMBER OF CHRISTIANS, &c.).

COPY of the RETURNS furnished by the Local Authorities in *India*, as to Number of CHRISTIANS of different Persuasions in the different CONGREGATIONS; SALARIES of MINISTERS of RELIGION ministering to them, &c.; in reply to the Circular of the Central Government, laid before Parliament last Year.

(Mr. O'Reilly.)

Ordered, by The House of Commons, *to be Printed*,
15 *February* 1877.

3 ½

Under 3 *oz.*

EAST INDIA (REVENUE AND EXPENDITURE, 1861-2 TO 1877-8).

RETURN to an Address of the Honourable The House of Commons, dated 11 June 1877;—*for*,

"COPY of STATEMENT showing the REVENUE and EXPENDITURE in each Year from 1861-2 to 1877-8 (including EXPENDITURE on FAMINE, but excluding that on PUBLIC WORKS EXTRAORDINARY, from 1867-8), the SURPLUS or DEFICIT in each Year, and the Net Amount of DEBT incurred from 1861-2 to 1876-7, inclusive."

India Office, 11 June 1877.

GEORGE HAMILTON.

STATEMENT showing the REVENUE and EXPENDITURE of INDIA in each Year from 1861-62 to 1877-78 (including EXPENDITURE on FAMINE, but excluding that on PUBLIC WORKS EXTRAORDINARY from 1867-68), the SURPLUS or DEFICIT in each Year, and the Net Amount of DEBT incurred from 1861-62 to 1876-77, inclusive.

YEAR.	REVENUE.	ORDINARY EXPENDITURE.			SURPLUS.	DEFICIT.
		Excluding Famine.	Famine.	TOTAL.		
	£.	£.	£.	£.	£.	£.
1861-62	43,829,472	43,880,100	-	43,880,100	-	50,628
1862-63	45,143,752	43,316,406	-	43,316,406	1,827,346	—
1863-64	44,613,032	44,534,685	-	44,534,685	78,347	—
1864-65	45,652,897	45,846,418	-	45,846,418	-	193,521
1865-66	48,935,220	46,169,152	-	46,169,152	2,766,068	—
1866-67 (11 months)	42,122,433	44,639,924	-	44,639,924	-	2,517,491
1867-68	48,534,412	49,542,107	-	49,542,107	-	1,007,695
1868-69	49,262,691	52,036,721	-	52,036,721	-	2,774,030
1869-70	50,901,081	50,782,412	-	50,782,412	118,669	—
1870-71	51,413,686	49,930,696	-	49,930,696	1,482,990	—
1871-72	50,110,215	46,986,038	-	46,986,038	3,124,177	—
1872-73	50,219,489	48,453,817	-	48,453,817	1,765,672	—
1873-74	49,598,253	47,541,248	3,864,673	51,405,921	-	1,807,668
1874-75	50,570,171	48,013,114	2,237,860	50,250,974	319,197	—
1875-76	51,310,063	49,132,564	508,554	49,641,118	1,668 945	—
1876-77 (Register Estimate.)	51,220,713	51,167,367	*1,911,504	53,078,871	-	1,858,158
1877-78 (Budget Estimate.)	52,192,700	51,589,400	*1,425,000	53,014,400	—	—
					13,151,411	10,209,191
					10,209,191	
				NET SURPLUS between 1861-62 and 1876-77 - - - £.	2,942,220	

	1876-77.	1877-78.
	£.	£.
* In addition to the Sums charged for Famine Relief as "Direct Outlay," viz. - -	1,911,504	1,425,000
The Government of India estimate the Loss of Land Revenue at - - - -	1,384,500	495,100
Ditto - - - ditto - - - Excise „ - - - - - -	92,500	33,300
Ditto - - - ditto - - - Forest „ - - - - -	20,000	—
Ditto - - - ditto - - - Excess Charges in the Army - -	80,000	103,700
TOTAL - - - £.	3,488,504	2,057,100
Deduct,—		
Estimated Gain to the Revenues from increased earnings of Guaranteed and State Railways due to the Famine - - - - - - - - - - - -	290,000	5,100
£.	3,198,504	2,052,000

TOTAL ESTIMATED NET COST of FAMINE - - - £. 5,250,504.

	£.
NET AMOUNT of DEBT incurred from 1861-62 to 1876-77 inclusive - - - - - - - - - - -	32,666,828
Of which on account of redemption of Dividend on East India Company's Capital Stock - - - - - - -	4,579,416
	£. 28,087,412

EAST INDIA
(REVENUE AND EXPENDITURE,
1861-2 TO 1877-8).

STATEMENT showing the REVENUE and EXPENDITURE of INDIA in each Year from 1861-62 to 1877-78 (including EXPENDITURE on FAMINE, but excluding that on PUBLIC WORKS EXTRAORDINARY from 1867-68), the SURPLUS or DEFICIT in each Year, and the Net Amount of Debt incurred from 1861-62 to 1876-77, inclusive.

(Lord George Hamilton.)

Ordered, by The House of Commons, *to be Printed,*
11 *June* 1877.

1/2

EAST INDIA (RELEASE OF PRISONERS).

RETURN to an Address of the Honourable The House of Commons, dated 5 March 1877;—*for*,

"COPY of NOTIFICATIONS by the Government of India, dated the 1st day of January 1877, relating to the RELEASE of PRISONERS on the Occasion of the Assumption of the Title of EMPRESS of INDIA by HER MAJESTY the QUEEN."

India Office,
6 March 1877.

GEORGE HAMILTON,
Under Secretary of State.

HOME DEPARTMENT.

NOTIFICATIONS.

EXTRACT from the Proceedings of the Government of India in the Home Department, No. 37 c, dated Camp, Delhi, 1 January 1877.

RESOLUTION.

THE Viceroy and Governor General in Council has resolved to release a certain number of prisoners, and to remit a certain number of sentences against criminals in all the gaols throughout India, in the Penal Settlement of Port Blair, and, in the case of convicts sentenced in India, in the Straits Settlements, on the 1st proximo, as an act of clemency and grace, on the auspicious occasion of the assumption of the title of Empress of India by Her Majesty the Queen.

2. In this view, the cases of the following three different classes of prisoners in the gaols in India have come under consideration:—

I.—General Offenders.
II.—Civil Prisoners.
III.—Political Prisoners.

I.—*General Offenders.*

3. As regards general offenders, the Governor General in Council has directed that 10 per cent. of all the prisoners under confinement in each Province shall be released; care being taken that the number released be spread as evenly as possible over all localities, and that the following be excluded from the amnesty, namely:—

1st. Those whose conduct during imprisonment in gaol has been bad and turbulent;

2nd. Those whose crimes are (like thuggee or dacoitee) excepted from recommendation for release after 20 years' imprisonment at Port Blair, and those whose release is likely to give rise to a renewal of blood-feuds, or other disturbances of the public peace;

3rd. Professional and habitual criminals, and prisoners convicted more than twice.

4. Three classes of general offenders, European or native, have been, as far as possible, selected for release under the 10 per cent. order, namely :

1st. Those who have generally borne a good character, but have been led under sudden impulse to commit crimes, such as riot, affray, assault, or culpable homicide; women who have committed infanticide to hide their shame, and the like;

2nd. Those whose crimes were committed at an early age, and without the display of any special depravity;

3rd. Those whose crimes were of a grave character but have been expiated to some extent by long imprisonment with good behaviour. Under this head may be included a few life-convicts who have undergone imprisonment for 20 years, and who have generally behaved well throughout the period of their confinement.

5. Under these general instructions, Local Governments were authorised to select the criminals to be released under the 10 per cent. rule, a special officer in each Province being charged with the duty.

6. As regards partial remissions of sentences, all persons under sentence of one month's imprisonment or less, who have worked out half their sentence on or before 1st proximo, are to be released on that date without exception.

7. All persons under sentence of above one month's imprisonment and up to six months or less, have been granted a remission of 15 days. All persons under sentence of above six months' imprisonment have been granted a remission of one month. All persons under sentence of above a year's imprisonment have been granted a remission of one month for each year of their sentence; all remissions granted under these orders being restricted to well-conducted convicts. Under no circumstances has the boon been extended to such criminals as have been more than twice convicted; or to those who have been committed to gaol as security for keeping the peace; or to any person whose premature release may be deemed by the local authorities to be inexpedient for reasons of local importance.

II.—*Civil Prisoners.*

8. As regards civil prisoners, the Governor General in Council has been pleased to order the release of all those whose debts do not exceed the sum of 100 rupees, and the payment by Government of the debt or debts for which they are detained.

III.—*Prisoners at Port Blair.*

9. As regards the prisoners under this head, the Superintendent of Port Blair has submitted lists prepared in accordance with the instructions issued in the case of prisoners in India, and with special recommendations in the case of those who are not disqualified from the amnesty. These lists have been circulated to Local Governments and Administrations, so that the fullest consideration has been given to each individual case. Acting upon the information so obtained, the Governor General in Council has directed that 278 male life-convicts and 90 female shall be absolutely released; term-convicts, 65; male and female, and one Christian convict, or 434 in all.

10. Besides absolute releases, the Superintendent of Port Blair has been allowed to grant to well-behaved convicts in Port Blair, to the extent which he deems expedient, freedom within the limit of the Settlement, and, moreover, to give promotion in their respective classes to prisoners in the earlier stages of their probation.

11. As regards Indian convicts in the Straits Settlements, very full inquiries have been made. A special officer has been deputed to Singapore to confer with the Straits Government in view to re-consider the cases of all Indian convicts undergoing sentence in that Province. This officer, Mr. Brodhurst, of the Bengal Civil Service, has prepared lists of all the Indian convicts in the Settlements, and as in the case of the Port Blair prisoners, these lists have been forwarded for the opinions of the Local Governments to which the prisoners belong. The result of this inquiry is that 221 have been absolutely released.

12. In Sarawak four Indian convicts have been absolutely released, and in Madras seven Straits convicts, and in Bombay five. Thus the grand total of absolute releases of prisoners in transportation is 671.

13. The number of political prisoners in India is very small, and, indeed, most of these are not really in confinement, but reside under surveillance in places fixed for their residence.

It has been, however, found possible to grant entire freedom to Sirdars Kishan Kooer and Narain Singh, of the Punjab, and to give similar boons to others residing in various places.

14. Special instructions have been issued to all Local Governments that the arrangements for the release of prisoners shall be carried out circumspectly and quietly, the prisoners being conducted to their homes in small batches, and when practicable under police supervision.

15. The net result of these orders will approximately be as follows:—

(*a*) Prisoners, including civil and political prisoners, released by Local Governments and Administrations	15,317
(*b*) Released at Port Blair	434
(*c*) Prisoners released in the Straits and elsewhere	237
Total	15,988

ORDER.

Ordered,—That this Resolution be published for general information, and forwarded to the Local Governments and Administrations noted in the margin.*

EXTRACT from the Proceedings of the Government of India in the Home Department, No. 38 c., dated Camp, Delhi, 1 January 1877.

RESOLUTION.

THE Viceroy in Council having considered the terms of the amnesty granted in 1859, is pleased to announce that the exception from the amnesty of persons who were leaders of revolt is withdrawn, and that such persons may now return to their respective homes on the sole condition of announcing their return to the district authorities, and of good behaviour for the future. Such persons will, however, be required, if they wish to leave the limits of the district in which they reside, to give previous notice to the district authorities.

The exception as to murderers and leaders of mutiny will still remain in force, and nothing in the above Notification will extend to Feroz Shah, the son of the late King of Delhi.

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* Madras, Bombay, Bengal, North-Western Provinces, Punjab, Oudh, Central Provinces, British Burmah, Mysore and Coorg, Assam, Hyderabad Assigned Districts.

EAST INDIA (RELEASE OF PRISONERS).

COPY of NOTIFICATIONS by the Government of India, dated 1 January 1877, relating to the RELEASE of PRISONERS on the Occasion of the Assumption of the Title of EMPRESS of INDIA by HER MAJESTY the QUEEN.

(*Mr. Mitchell Henry.*)

Ordered, by The House of Commons, *to be Printed,*
7 March 1877.

Under 1 *oz.*

EAST INDIA.

COPY OF RECENT CORRESPONDENCE

ON THE SUBJECT OF THE

ORGANISATION OF THE NATIVE ARMY.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
FOR HER MAJESTY'S STATIONERY OFFICE.

1877.

[C.—1698.] *Price* 3*s*. 6*d*.

ORGANISATION OF THE NATIVE ARMY.

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EAST INDIA.

COPY OF RECENT CORRESPONDENCE

AS TO THE

ORGANISATION OF THE NATIVE ARMY.

Military, No. 215.

To His Excellency the Right Honourable the Governor General of India in Council.

My Lord, India Office, London, 10th August 1876.

Para. 1. With your two letters, Nos. 51 and 53, dated severally the 3rd and 10th March 1876, your Government transmit minutes and correspondence relating to the very important subject of the present condition and future organization of the Native Army of India. These papers have received my most careful consideration in Council.

2. I observe that your Lordship's predecessor considered it desirable to institute a series of inquiries into various matters connected with the Native Army, in consequence, mainly, of certain suggestions having been received from high military authorities in India in reference to the existing pension rules.

3. Your Government were led, under these circumstances, to address the Commander-in-Chief in India, and the Governments of Madras, Bombay, and the Punjab, calling for opinions and information in detail upon many important questions relating to the Native Army.

4. These proceedings have resulted in the collection from all parts of India of a mass of information and a variety of interesting and valuable opinions from officers of distinction and experience, well calculated to aid and ensure the formation of a right conclusion upon the general question.

5. The main points treated of in your letters under acknowledgment are the following:—

First. The present system of organization, more particularly as regards the number and relative duties of officers, British and Native.

Secondly. The proposal to change the designation of the regimental officers of the junior grades.

Thirdly. The adoption of certain rules, providing for the advancement, exchange, and retirement of European officers of Native regiments.

Fourthly. The present system of appointment to and promotion in the Staff Corps.

Fifthly. The disposal of military officers who may have been in civil employment beyond a certain fixed limit of time.

6. With regard to the first point, viz., the present system of organization, more particularly as regards the number and relative duties of officers, British and Native, your Government recommend a retention of the present organization as respects the Native officers, and you consider the present complement of European officers sufficient for all purposes of Indian service. You state that, after giving full weight to all that is urged against entrusting the command of troops and companies to Native officers, you have no hesitation in affirming that,

as respects the Bengal Army, to adopt any other system would be in the highest degree unwise; while in Madras and Bombay, although the change in this particular has perhaps not as yet been so successful as in Bengal, you are confident that continued efforts to improve the Native officers will be crowned with success. Considering that it is unnecessary to require higher qualifications in Native officers than such as are proper for the perfect efficient command of troops and companies, you are not prepared to admit that there can be any insuperable difficulty in finding, among a body of non-commissioned officers selected from several hundred Native soldiers, the very limited number of men of sufficient character and intelligence required to perform these duties, if properly instructed, and you still hope that it may be possible in Madras and Bombay to occasionally bring in Native gentlemen at once as Native officers, as is now done in Bengal.

7. The number of combatant officers now allotted to a regiment of Native infantry is 23, of whom seven are European and 16 Native, the number of rank and file amounting to 696. There seems to be no doubt that this number of European officers is ample in time of peace for the duties they are required to perform; whether it will be sufficient in time of war is a question upon which a remarkable difference of opinion exists among military men of the greatest experience. On the whole, the weight of authority, as well as of argument, appears to me to be on the side of those who contend that the present organization of the Indian army is calculated to furnish a sufficient reserve of officers for the ordinary exigencies of field service. At the same time it must be borne in mind that the Government are in no way bound to a rigid adhesion, under all possible contingencies, to the fixed establishment, and upon such special occasions as those mentioned in paragraph 9 of your despatch, No. 53, it will be in the power of the Government to sanction such a temporary increase as would supply a reserve of European officers more readily available, by drawing either upon the officers employed upon duties other than regimental, upon those on furlough, or upon those with regiments left in garrison.

8. It is impossible to consider the question of increasing the number of European officers attached to each regiment apart from the present condition and prospects of Indian finance. Even if the advantage of such an addition were far more distinctly established than it is, the importance of retrenching at the present time all military expenditure which is not absolutely necessary would render such a measure unadvisable. The increased pay which, since the formation of the Staff Corps, has been given to the officers of the Indian army, would make any considerable addition to their number a heavier burden to the Treasury than under existing circumstances Her Majesty's Government are prepared to sanction.

9. It has been suggested to me, however, that the recent issue of arms of precision to the Native troops, and the introduction into that branch of the service of a system of musketry instruction may render it necessary at no distant period to consider the propriety of appointing an European officer as musketry instructor to each battalion. Subject to considerations of financial exigency, I should not object to such a measure, should your Government consider it necessary for the efficiency of the service.

10. With regard to the Native portion of the commissioned grades, I cannot doubt but that under a new and improved system of selection and training the Native officers of the army will prove themselves worthy of the confidence placed in them, and of the improved position assigned to them.

In connexion with this subject, I would urge upon your Government the necessity of impressing upon the military authorities the extreme importance of giving their close and earnest attention to this element in our Native Army—the Native commissioned officer.

I observe that in the Despatch No. 46, dated 22nd February 1872, the Duke of Argyll made some inquiries respecting the measures that had been adopted up to that time, since 1857, in connexion with the selection and promotion of Native officers, consequent upon the change that had passed over their position and duties. The replies received to that inquiry at that time did not indicate any marked improvement upon, and but little change of any kind from, the former system, and this appears to me to be a fitting opportunity for calling your Lordship's attention to this point, as one of vital importance to the efficiency of the

army. I am aware that in the Bengal army a great advance has been made, under the personal influence of the late Commander-in-Chief, in the instruction and training of Native officers and non-commissioned officers, and I feel sure that Sir F. Haines will follow his predecessor's action in this very important point. I would suggest, however, that the attention of the several Commanders-in-Chief be called to the subject,—that they be urged to exercise special watchfulness over the Native officers, and to take every opportunity of directing the attention of commandants of regiments to their position and duties, and to the importance of their giving to their native officers the utmost encouragement, confidence, and support.

12. I shall only further observe, with reference to this subject, that I attach great importance to the measure referred to incidentally in the third paragraph of your Letter, No. 53, under acknowldgment, wherein you express a hope that it may be possible in the other presidencies to bring in Native gentlemen at once as Native officers as is now done in Bengal. It seems to me that such a measure adopted at first to a limited extent, but recognising an important principle of action on the part of the Government, might be expected to exercise a beneficial effect of a very marked character upon the Native Army generally, and upon the class of Native commissioned officers in particular.

13. The selection and appointment of a few Native gentlemen of good family, of approved loyalty, and of good education, to hold the position of Native commissioned officer with the regular army could not fail, especially if they had the further claim of being sons of distinguished Native officers, to promote a feeling of professional pride and self-respect among the other members of the same class, and to enhance the dignity and importance of their position.

14. In making such selections it will be necessary that certificates of physical and intellectual fitness, as well as of moral conduct, should in all cases be required. This course has, I believe, been laid down with respect to the few direct appointments of this nature recently made. Further, I would observe that, in carrying out this measure, due regard should be paid to the interests and just expectations of the old non-commissioned officers.

15. I have now to consider the second question raised in your letter, viz., a proposed change in the designation by which certain of the European regimental officers are at present known. Your Government propose that squadron and wing officers should henceforward be designated as squadron and wing commanders, and those now designated as squadron and wing subalterns should be called squadron and wing officers respectively. I approve of this proposal.

16. In paragraphs 12 to 18 of your letter, No. 53, you propose the adoption of certain rules, with a view of making more effectual provision for the advancement, exchange, and retirement of European officers of Native regiments. In an appendix to your letter, I find the rules referred to, in the whole of which, with the exception of Rule III., I have to express my entire concurrence. The proposed Rule III. is as follows:—

An officer, on the completion of 31 years' service, shall not retain any regimental appointment which he may have held for five years, unless re-appointed thereto by the Commander-in-Chief for a further term not exceeding five years. An officer of 31 years' service who has not held his regimental appointment for five years may complete that term; and present incumbents will not be required to vacate them for a period of three years from this date, or a period of eight years from date of their appointments.

17. There can be no question as to the importance of maintaining the European portion of the Native Army in the highest possible state of efficiency, by arranging for the timely retirement of officers who may have become unfitted for the active duties of their profession, either by age or by other infirmities.

18. At the same time, I cannot but perceive that the adoption of a fixed limit of age, and that not by any means an advanced one, for the superannuation of officers of the Indian Staff Corps, might not only lead to many cases of positive hardship to the officer and detriment to the public service, but would also be attended with a very serious increase of expenditure.

19. This objection does not seem to have attracted the notice of your Government, as I find the proposal unaccompanied by any estimate of the probable cost.

20. I shall take an early opportunity of addressing your Lordship again on this particular point, and I hope to be in a better position to consider and decide upon your proposal when I shall have been informed of the result of the deliberations of a Royal Commission, which has been engaged for some time, under the presidency of Lord Penzance, in considering a scheme for regulating the promotion and retirement of officers of the British Army, and of the action which the Secretary of State for War may propose to take upon their report.

21. That report cannot fail to deal thoroughly and comprehensively with the general question of retirement and superannuation, and although regulations upon these points must necessarily vary somewhat in details as applied to the British and Indian branches of the service, I consider it in all cases desirable that the proceedings in both should be based upon an uniform principle.

22. With regard to the present system of appointment and promotion in the Staff Corps, treated of in paragraphs 19 to 21 of your letter, No. 53, you observe, after alluding to the alleged advantages and disadvantages of the present system, that you are not aware of any system which could with convenience be substituted for the Staff Corps system of promotion, or for the system of supplying regiments and departments from that corps, while if such a system were successfully sketched out, it would, you apprehend, be exceedingly difficult to introduce it without an amount of change that would be most disturbing in every way; nor do you apprehend that any change likely to be adopted would secure that Indian service should be so popular as it is under present arrangements.

23. I have placed myself in communication with his Royal Highness the Field Marshal Commanding-in-Chief on the subject of arrangements which it seems desirable to make with the view of meeting the present pressing and, I trust, exceptional demand for young officers, and I shall address you at an early date upon the subject. Meanwhile I need only observe that the present system, as far as it has been in operation, appears to have yielded a supply for the Indian service of very promising young officers.

24. The last point of importance which I have to notice is the proposal made in the latter part of paragraph 22 of your letter, relative to the removal of officers from the effective list of the army after a definite period of service in a civil department.

25. This question, is so intimately connected with that of army promotion, retirement, and superannuation, that, for reasons above given in connexion with another subject, I should wish, before communicating to your Lordship my final decision upon the subject, to await the result of the labours of Lord Penzance's Commission.

26. Having now noticed the several points of importance raised for consideration in your letters under acknowledgment, I have to express the satisfaction with which Her Majesty's Government receive the assurance contained in the 28th paragraph of your letter, No. 53, where you state your conviction that the Native Army, taken as a whole, is in good condition.

27. It only remains for me to notice certain proposals contained in a letter from your Government, No. 52, dated the 3rd March, relative to the improvement in the pay and allowances of the Native officer.

28. In submitting those proposals, your Government observed that they were based on the assumption that troops and companies would continue to be commanded by the Native officer, as at present. You were informed, therefore, in my despatch, No. 214, dated the 10th August 1876, disposing of the proposals for improving the position of the Native soldier, that this question of an increase of pay to the Native officer would be deferred pending a consideration of the general question of the organization of the Native Army.

29. I have now to communicate to you the sanction of Her Majesty's Government to the measures proposed for the improvement of the Native officer's position in paragraphs 13 to 16 of the above-mentioned letter.

30. I observe that the annual cost of these measures has been estimated by your Government at Rs. 3,58,500.

31. The question of a revision of the pension rules for the Native Army appears to have occupied a prominent place in the deliberations of your Government in connexion with the present condition and future organization of the Native Army.

32. I trust to receive, at a very early date, the proposals of your Government upon this subject. It appears to me to be of great importance to the efficiency and contentment of the army that these regulations should be such as to make a liberal provision for old and deserving soldiers, and should secure the timely removal from the effective list of worn out and inefficient men.

I am, &c.
(Signed) SALISBURY.

No. 51 of 1876. Military Department.

To the Most Honourable the Marquis of Salisbury, Her Majesty's Secretary of State for India.

My Lord Marquis,

Your Lordship is doubtless aware that for some time past the whole condition of the Native Army of India has been under the careful consideration of our Government, and that we have devoted much attention to the subject, in view to laying before Her Majesty's Government such suggestions as might seem desirable. Various inquiries had been made and several memoranda had been prepared when a representation was received from Bombay, relative to the unsuitability of the existing pension rules of the Native Army, and this having been referred for the opinion of the Commander-in-Chief in India, his Excellency in reply gave it as his opinion not only that an alteration was desirable in the pension regulations, but also that various other changes were required, as specified in the Adjutant-General's letter.

Enclosure 1.
Bombay Government letter, No. 3,267, dated 1st September 1874.

Enclosure 2.
Military Department letter to Adjutant-General, No. 722 of 14th October 1874.
Adjutant-General's reply, No. 2,837B, dated 16th November 1874, and No. 1,482B, dated 30th June 1875.

2. Having given our full attention to what was urged by Lord Napier of Magdala, and being in a better position than we had previously been to make proposals with respect to the European officers owing to your Lordship's assent to our proposal to allow a large number of senior officers to commute their title to colonel's allowances, it seemed to us to be desirable, before recommending to Her Majesty's Government the measures proposed by his Lordship, to institute a series of inquiries into various matters connected with the Native Army, the replies to which, conjoined to our knowledge derived from the elaborate confidential reports on regiments which we receive and forward annually to your Lordship, and from other sources, would enable us, with some degree of confidence, to submit to Her Majesty's Government our views as to the whole condition of the Native Army and the measures we deem it desirable should be adopted with respect to it.

3. Accordingly, in a series of communications addressed to the Adjutant-General in India and the Governments of Madras, Bombay, and the Punjab, we called for opinions and information in detail as to the present system of officering the Native Army, including the efficiency of Native officers for the duties and positions which now devolve upon them; for returns to show the condition of the troops in many particulars, together with extracts from confidential reports for the past three years as to the quality of recruits; and for returns which would embrace all the essential statistics of the invaliding of the armies of the three Presidencies.

Enclosure 3.
Military Department to Adjutant-General, Fort St. George and Bombay, Nos. 781-82-83, and to Adjutant-General, Fort St. George, Bombay and Punjab, Nos. 784-85-86-87 of 17th February 1875.
Military Department to Adjutant-General, Fort St. George, Bombay and Punjab, No. 1,070-71-72-73 of 22nd February 1875.
Military Department to Adjutant-General, Fort St. George, Bombay and Punjab, Nos. 177-78-79-79A of 3rd March 1875.

4. In due course all the replies were received, and they embodied an amount of information and a collection of opinions of the most comprehensive character, but it was late in August before all had reached, and the tabulation and preparation of a précis of the whole could not be carried out in a very short time. All, however, was in a complete shape and before the Government, just prior to the departure of his Excellency the Viceroy from Simla, and it was determined that the full discussion of all the important points involved should be deferred until his Excellency the Commander-in-Chief could rejoin the Government in Calcutta on the breaking up of the Camp of Exercise.

ENCLOSURE 4.

From Government of Fort St. George, No. 1,809, dated 15th April 1875, and annexures.
From Government of Bombay, No. 2,645, dated 29th June 1875, and annexures.
From Adjutant-General, No. 1,932B, dated 14th August 1875, and annexures.

From Government of Fort St. George, No. 1,764, dated 13th April 1875, and enclosures.
From Government of Fort St. George, No. 2,386, dated 19th May 1875, and enclosures.
From Government of Bombay, No. 1,457, dated 14th April 1875, and enclosures.
From Adjutant-General, No. 734B, dated 16th April 1875, and enclosures.
From Adjutant-General, No. 907B, dated 30th April 1875, and enclosures.
From Adjutant-General, No. 1,233B, dated 3rd June 1875, and enclosures.
From Government of the Punjaub, No. 100-1,132, dated 23rd April 1875, and enclosures.
From Government of the Punjaub, No. 112-1,323, dated 17th May 1875, and enclosures.
From Government of Fort St. George, No. 1,765, dated 13th April 1875, and enclosures.
From Government of Fort St. George, No. 2,208, dated 13th May 1875, and enclosures.

From Government of Fort St. George, No. 1,411, dated 23rd March 1875.
From Government of Bombay, No. 1,265, dated 2nd April 1875.
From Adjutant-General, No. 1,106A, dated 9th April 1875.

5. This delay gave ample time for the members of the Government to peruse all the papers received, together with the précis and abstracts of the whole prepared in the Military Department, copy of which we forward as one of the enclosures, and a note since, with the sanction of the Viceroy, converted into a Minute by our colleague, Major-General Sir Henry Norman, and also a Minute by his Excellency the Commander-in-Chief in India.

ENCLOSURE 5.

Military Department précis and abstracts of returns.
Minutes by Major-General Sir H. W. Norman, K.C.B., dated 11th October 1875, and 3rd March 1876.
Minute by his Excellency the Commander-in-Chief, dated 6th November 1875.

6. With all these materials before us, we have proceeded to a careful discussion of the several points treated of in the papers, and for convenience sake we shall now address your Lordship in separate despatches, dealing with the different branches of the subject, and referring from time to time, as may be found necessary, to documents forwarded with this despatch.

We have, &c.
(Signed) NORTHBROOK.
NAPIER OF MAGDALA.
H. W. NORMAN.
ARTHUR HOBHOUSE.
E. C. BAYLEY.
W. MUIR.
A. J. ARBUTHNOT.
A. W. CLARKE.

Fort William,
The 3rd March 1876.

ENCLOSURES 1 and 2.

PROPOSED REVISION OF THE RULES REGARDING THE INVALIDING AND PENSIONING OF NATIVE SOLDIERS.

From Colonel J. MACDONALD, Secretary to the Government of Bombay, Military Department, to Colonel H. K. BURNE, Secretary to the Government of India, Military Department.—(No. 3267, dated Bombay Castle, the 1st September 1874.)

I AM directed to submit to the Government of India, the accompanying copy of a letter from the Adjutant General, No. 868, dated 4th July 1874, and of its enclosure, recommending a revision of the rules regarding the invaliding and pensioning of Native soldiers, together with a copy of a report thereon by the Controller of Military Accounts, No. 891, dated 30th July, and to state that in the opinion of this Government, the expediency of removing from the active strength of the Native Army, men whose presence would in time of trial become extremely embarrassing, is so obvious as to entitle the suggestions of his Excellency the Commander-in-Chief to the best consideration of the Government of India.

From Brigadier General C. T. AITCHISON, Adjutant-General of the Army, to the Secretary to Government, Bombay, Military Department.—(No. 868, dated Poona, the 4th July 1874.)

The Commander-in-Chief having recently had under consideration the existing regulations for the disposal of Native unfits, I am directed by his Excellency to bring to the notice of Government that regimental efficiency is much impaired by the restrictive rules laid down in G. G. O. No. 582 of 1864, which are in effect as follows :—

That no Native officer or soldier can be removed to the Pension List except—

(*a*) By invaliding, or

(*b*) By order of the Commander-in-Chief, *provided* the man has served 40 *years*.

2. It not unfrequently happens, however, that Native officers and non-commissioned officers of *less* than 40 *years'* service, though physically fit for the army, are mentally unfit for the positions they hold in it; but as the Government of India is averse to the transfer of Native commissioned and non-commissioned officers to the Pension List unless declared unfit for further service, there is no alternative but to send them before the annual invaliding committees, a course, however, which usually ends in their being pronounced *medically* "fit" and sent back to duty with their corps, thus neutralising the efforts of commanding officers to maintain in their regiments a high standard of military efficiency, and throwing back upon the Native Army a class of men whose retention in the service is baneful in its influence, and retards the promotion that ought to be given to younger soldiers.

G. R. No. 5045, 3rd December 1870, and G. R. No. 819, 17th February 1873, with annexments.

3. The Bengal rules, which allow a greater latitude to general invaliding committees, and which with the approval of Government it is proposed to adopt in the Bombay Military Regulations now being compiled, do not meet the difficulty herein represented, and his Excellency would strongly recommend that G. G. O. No. 582 of 1864 be modified to the following extent, viz. :

Paras. 2725 and 2731.

(*a.*) That all Native officers and non-commissioned officers of 30 years' service and upwards who, from mental debility or any other cause not cognizable by court-martial, become professionally unfit (although physically fit) for further service, shall be liable to be summarily removed to the Pension List, on the recommendation of the Commander-in-Chief.

(*b.*) Further, that all Native officers and non-commissioned officers under 30 years' service, who may be reported by their commanding officer and the reviewing officer for similar disqualifications, shall be examined by a military board composed of two field officers and one medical officer, instead of a purely medical committee, and if pronounced by them to be unfit for their regimental positions (notwithstanding their physical fitness) shall be liable to be transferred to the Pension List.

4. In close connexion with the present subject, I am desired to refer to the pension rules of 1837 (*a.*) and 1864, and to state that since these rules came practically into force, officers commanding Native corps have brought to the notice of the Commander-in-Chief how injuriously they affect the efficiency of the Native Army.

(*a.*) Art. 194, page 678, Jameson's Code.

5. The lower pension is given at 15 years' service on a man being pronounced *medically unfit* for further service, and no higher pension until the termination of 40 *years'* service. The consequence is that many men on approaching the completion of their 15 years' service, and having no further increase of pension to look forward to for many years, take to malingering, and pertinaciously resort to hospital until they succeed in being removed to the Pension List. In some few cases punishment overtakes them, but sufficient evidence is not often forthcoming, and the evil example of many successful malingerers very injuriously affects discipline.

6. To remedy this, the Commander-in-Chief would suggest for the consideration of the Government of India, whether the re-introduction of a graduated scale of pensions, based on that which formerly existed in the Bombay Army (Article 188, page 677, Jameson's Code), would not be better than the rules now extant, as being an inducement for the Native soldier to go on serving as long as health permits and the commanding officer is satisfied, for under present rules the sepoy finds that on completing 15 years' service, if he can manage to get invalided, he receives as large a pension as he can obtain until he completes a long servitude of 40 years.

Report No. 891.

The question here raised is one of discipline, its financial bearing cannot be determined in the absence of any information as to the numbers who would be transferred yearly to the Pension List if the recommendations of his Excellency the Commander-in-Chief are adopted. Officers commanding regiments would probably take advantage of any relaxation of present rules to get rid of men who, though physically fit for the service, are not efficient as officers, or smart as soldiers.

2. The Pension List is even now a very heavy item of charge, the amount provided in the current year is nearly 42 per cent. of the effective pay of the Native army. Financially, it seems hardly desirable to increase the annual charge for pensions which would result if the old scale as laid down in Art. 188, page 677, of Jameson's Code was reverted to.

3. As the higher rates of pension after 40 years' service are only granted to men of unblemished character, such rates can hardly be called the ordinary rates of pension. Considering then that the ordinary rates of pension even after 40 years' service are the same as those payable to men invalided before that period is completed, might not the object sought be secured by granting men physically fit, but professionally unfit, a proportion of the ordinary pension on removal from the Effective List? say half pension to those removed between 15 and 30 years' service, and two-thirds after 30 and under 40 years.

4. This recommendation for revising the rules which regulate the grant and the rates of Native invalid pensions will, should Government entertain it favourably, have to be referred for the orders of the Government of India.

(Signed) T. B. Harrison, Lieut.-Col.,
Offg. Contr. of Mily. Accts.

Poona, the 30th July 1874.

From Captain T. DEANE, Officiating Assistant Secretary to the Government of India, Military Department, to the ADJUTANT-GENERAL.—(No. 722, *Pensions*, dated Fort William, the 14th October 1874.)

I AM directed to forward for favour of the opinion of his Excellency the Commander-in-Chief, the accompanying letter with its enclosures* from the Government of Bombay, No. 3267, dated 1st September 1874, on the subject of a revision of the rules regarding the invaliding and pensioning of Native soldiers.

* Copy of a letter No. 868, dated 4th July 1874, from the Adjt.-Genl. to Bombay Government.
Extracts from confidential reports on the Native Army for 1874.
Report by Contr. of Mily. Accts., Bombay, dated 30th July 1874, No. 891.
Return requested.

2. I am at the same time to forward for his Excellency's information a copy of the returns* of men pensioned in the three presidencies during the past two years of less and more than 40 years' service respectively.

* Pro. October 1874, Nos. 1-4.

From Colonel P. S. LUMSDEN, C.B., C.S.I., Officiating Adjutant-General in India, to Colonel H. K. BURNE, Secretary to the Government of India, Military Department.—(No. 2837B. Native Army / Invaliding pensions, dated Head Quarters, Simla, the 16th November 1874.)

I AM directed by the Right Hon. the Commander-in-Chief to acknowledge the receipt of Military Department No. 722, "*pensions*," of 14th October 1874, forwarding for his Excellency's opinion a representation* from the Government of Bombay on the necessity of a revision of the rules regarding the invaliding and pensioning of Native soldiers.

* Herewith returned.

2. The time seems to have arrived when the whole subject of the pay, invaliding, and pensioning of the Native army must be revised by the State, as it is forced on military commanders by the increased cost of all the necessaries of life, the rise in the prices of all kinds of labour, and the greater demands made on the soldier than were required of him when his pay of seven rupees a month with its accompanying batta, pension rules, and scale of clothing were fixed.

3. That the matter can no longer be safely deferred may be accepted from the fact that it has been urged by the Madras Government, and received consideration, inquiry, and support from that of Bombay.

4. Lord Napier of Magdala entirely coincides with the military authorities in Bombay, and to the necessity of altering the terms of the Native soldiers' service.

5. The returns of the number of Native soldiers pensioned, as distinct from invalids, during the year 1873–74, as shown in the returns which accompanied your letter under acknowledgment, amounted

Bengal	17
Madras	44
Bombay	4
Total	65

whereas, the invalids during the same period amounted to

Bengal	3,170
Madras	1,656
Bombay	1,800
Total	6,626

6. The Commander-in-Chief thinks that these figures, coupled with the alleged increased difficulty in recruiting, and the eagerness of the soldiers to be entered in the invalid rolls after 15 years' service, are proofs that the system is radically defective, and that the present terms of service are unpopular.

7. Considering the precocity of Asiatic races, and their early arrival at mature age, the ruling that no soldier is to get a pension until after 40 years' service, is, in his Excellency's opinion, nearly tatamount to decreeing no pension at all, and the procedure of confining pensions to invalids, instead of holding out an inducement for continued and faithful service, is highly injurious to the best interests of the service, and tends to maintain a system of constant and successful malingering.

8. Did the system of invaliding secure regimental efficiency there might be some inducement to advocate its continuance, but, so far from this being the case, it is a frequent source of discord between commanding and medical officers, especially with reference to the terms of "long service," clause c. of Bengal Army Regulations, paragraph 2725. At present so much is this the case, that, had not his Excellency hoped to obtain a more radical cure for existing defects of system, he would have been induced to solicit Government to sanction the introduction of the military element into the personnel of invaliding medical committees, and to apply the principles advocated by Sir H. Fane, on the like difficulties presenting themselves in invaliding in the British Army in India, which were met in G. O. Queen's Troops, 28th June 1838.

Copy enclosed.

9. Lord Napier of Magdala is convinced that a certain amount of extra expenditure is necessary to maintain the Native Army, and therefore his Excellency would recommend—

I.—That the recruit shall get a free kit after six months' service—Rs. 18 to be allowed to be drawn by the regiment on this account on enlistment, and the remainder on the recruit joining the ranks after passing his drill, instead of recruits having as at present to pay on an average some Rs. 36, to be deducted by instalments from a nominal pay of Rs. 7 a month.

II.—That an allowance of Rs. 4 per man a year be made to each regiment, instead of deductions as half-mounting being taken monthly from the Sepoy's pay of Rs. 7.

III.—That good-conduct pay be allowed at the following rates instead of according to existing procedure:—

1st. After 3 years, R. 1 per month.
2nd. After 9 years, Rs. 2 ditto.
3rd. After 15 years, Rs. 3 ditto.

IV.—That according to the accompanying scale (A.), subject to the requirements of the service, Native officers, non-commissioned officers and men be entitled to proceed to their homes and pass to a reserve.

V.—That this ruling be subject to the exigencies of the State, it being competent, in order to control the strength of the reserve, to suspend the application of the order for a stated period, or to limit the operation of it to a given extent in each battalion.

Thus, supposing this project to have been accepted, and the number of men seeking pension to be about equal to the number now invalided and pensioned, there would be on the averages of 1873–74, 3345 per annum, or in round numbers say 3,500, of which allowing 1,500, or 3-7ths to meet the invaliding on account of wounds or disease contracted from service in a notoriously unhealthy district, together with the cost of proposed gratuities (hereafter referred to), there would be available 2,000 men for draft to the reserve among the three presidencies, which divided roughly amongst the 30 regiments of cavalry and 120 of infantry, and allowing for strength a proportion of 3-5th to the former for every one of the latter, would give about an average of 13 pensions available annually in every regiment of infantry, and 9 for every regiment of cavalry.

10. That all pensioners between the periods of 20 and 40 years' service be liable on all State emergencies to be called out. When so called out, they be usually employed in garrison duties to take the place of troops going on service.

11. That these pensioners be required to present themselves yearly to receive their pensions, and at that period, unless reported physically unfit, they be under arms for one month's annual training, for which period they should receive full-pay of their respective ranks.

12. These pensioners to form a general reserve force, under the immediate command of experienced officers located at reserve depôts, which perhaps (except in the cases of Goorkha and other hill soldiers) might conveniently be formed at the Head Quarters stations of army commands.

13. A British field officer on the half staff command pay of a regiment to be detailed to the command of each depôt, to be assisted by a second officer, should the depôt exceed a strength of 800 men, with an extra field officer for every such 800 additional men.

14. With regard to invalid pensions for wounds sustained in action, existing procedure might be maintained. Cases of invaliding from the effects of disease contracted by service, or special cases stated by medical officers to be due to climate, might be met by declaring the climate of Assam as one in which, if any troops foreign to it should be invalided, they should be entitled to existing invalid pensions, and a like ruling to be held good in the case of Punjab troops serving in Bengal proper, or men from the south of Delhi at Peshâwar or the Derajat.

15. In cases, however, of men breaking down before 20 years' service from ordinary causes, the system of gratuities instead of pension might, in his Excellency's opinion, advantageously be applied on the following scale:—

Under 5 years and over 3 - - -	- 3 months pay.
From 5 years to 10 - - - -	- 6 ditto.
From 10 years to 15 - - - -	- 9 ditto.
From 15 years to 20 - - - -	- 1 year's pay.

16. Lord Napier of Magdala would take this opportuinity, while submitting what appears to his Excellency radical requirements for the well-being of the Native army, to urge upon Government the advisability of sanctioning colours and bands to all corps not already provided with them.

The feelings of the Native soldiery associate with colours a veneration very much akin to that which leads soldiers of Western nations to cherish insignias around which they have rallied in hours of danger, and followed on the tide of victory.

It is well, his Excellency thinks, to nourish such feeling and add every accessory incentive to increase *esprit-de-corps*. On the occasion of communicating to the 45th Native Infantry Her Majesty's most gracious permission to wearing on their colours "Behar" and "Defence of Arrah," his Excellency received a most earnest appeal from the native officers and men for the grant of colours without which, they point out, "there is nothing to show of these honours won, nor to tell of "Her Majesty's gracious approval of the regiment's distinguished services."

17. The Commander-in-Chief is aware of the objections on the score of expenditure which may be raised to this project. I am, however, to point out that the immediate saving on the invaliding account would probably go a long way to meet the contemplated expenditure, on the creation of so necessary a component as a reserve to the Indian army.

18. Lord Napier of Magdala has considered most carefully the possibility of making reductions in the Native army to meet any possible extra expenditure, but is convinced that the strength of the Native army is at its minimum with regard to the duties required of it in times of peace.

19. In the case of sudden and unforeseen war there is no reserve, and the inadequacy of the existing strength was illustrated on the despatch of the comparatively small force detached from India for Abyssinia, which, in the opinion of the Governor General in Council, necessitated an immediate increase of six men to every troop of Native cavalry and 10 to every company of Native infantry, even in this presidency.

Again, at Umbeyla where we had at command and immediately available, the mass of the force disposed especially to meet such a demand, the check to our arms and the sudden call for large reinforcements caused so great a shock as to render necessary the movement of troops from the very further extremities of the empire.

From Bombay Presidency, Bengal and Oude.

20. The Commander-in-Chief considers it most desirable that the sick in Native Infantry Hospitals should not be left in all the varieties of Indian climate to depend entirely on their own resources as to bedding, and submits that an allowance of blankets equal to 5 per cent. of strength be allowed to meet special cases of sickness.

21. Lord Napier of Magdala in conclusion would reiterate his opinion that experience has shown that the existing strength is the very minimum for the requirements of this country, that the creation of a reserve is a necessity, and that the improvement of the condition and prospects of the Native soldier are of vital importance to the efficient maintenance of the Native armies.

A.

Scale of proposed Pensions.

No estimate of the difference of cost between invaliding and pensioning can be given, as the Pension List is with Government.

	After 20 years' service, ½ full pension.			After 25 years' service, ⅔ full pension.			After 30 years' service, ¾ full pension.			After 35 years' service, ⅘ full pension.			After 40 years' service, full pension.		
	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.
Subadars, 1st Class - -	25	0	0	33	5	4	37	8	0	42	13	8	50	0	0
Ditto, 2nd Class - -	22	8	0	30	0	0	33	12	0	38	10	6	45	0	0
Ditto, 3rd Class - -	20	0	0	26	10	8	30	0	0	34	4	6	40	0	0
Jemadars, 1st Class - -	15	0	0	20	0	0	22	8	0	25	11	5	30	0	0
Ditto, 2nd Class - -	10	0	0	13	5	4	15	0	0	17	2	3	20	0	0
Havildars - - - -	7	0	0	9	5	4	10	8	0	12	0	0	14	0	0
Naicks - - - -	6	0	0	8	0	0	9	0	0	10	4	6	12	0	0
Sepoys, Drummers and Buglers -	3	8	0	4	10	8	5	4	0	6	0	0	7	0	0

P.S.—Probably but few men would go in the grade of Naick or Sepoy.

B.

Approximate cost of giving recruits a free kit.
Number of recruits engaged during the years 1871–72–73.

Recruits.

3) 11,228

3,742⅔=yearly average.
36

22,452
11,226

134,712=Annual cost of proposed measure.

C.

Approximate cost of doing away with half-mounting.
Native non-commissioned officers, rank and file, on 1st October 1874.

34,045
4

136,180=cost.

D.

APPROXIMATE STATEMENT of probable Increase to the Charge for Good-Conduct Pay in Native Infantry according to the Proposal under consideration. Average taken from four Regiments.

Corps.	At Present.			Proposed (Approximate).			Remarks.
	Number.	Per mensem.	Per year.	Number.	Per mensem.	Per year.	
		Rupees.	Rupees.		Rupees.	Rupees.	
11th Native Infantry -	204 at 1 rupee	204	2,448	267 at 1 rupee	267	3,204	
				75 at 2 rupees	150	1,800	
	200 at 2 rupees	400	4,800	117 at 3 „	351	4,212	
Total - -	404	604	7,248	459	768	9,216	
21st Native Infantry -	92 at 1 rupee	92	1,104	123 at 1 rupee	123	1,476	
				165 at 2 rupees	330	3,960	
	220 at 2 rupees	440	5,280	36 at 3 „	108	1,296	
Total - -	312	532	6,384	324	561	6,732	
31st Native Infantry -	132 at 1 rupee	132	1,584	273 at 1 rupee	273	3,276	
				95 at 2 rupees	190	2,280	
	140 at 2 rupees	280	3,360	27 at 3 „	81	972	
Total - -	272	412	4,944	395	544	6,528	
41st Native Infantry -	100 at 1 rupee	100	1,200	267 at 1 rupee	267	3,204	
				135 at 2 rupees	270	3,240	
	160 at 2 rupees	320	3,840	18 at 3 „	54	648	Rupees. 7,392 proposed. 5,904 at present.
Total - -	260	420	5,040	420	591	7,092	1,488 per Infy. Regt. 50 per annum.
Grand total -	1,248	1,968	23,616	1,598	2,464	29,568	Rupees 74,400 or 7,440*l.* per annum.
Average - -	302	492	5,904	399	616	7,392	

GENERAL ORDER.

Head Quarters, Simla, 28th June 1838.

No. 139.—The inefficient state of some of Her Majesty's Regiments in Bengal, as compared with their numbers on paper, owing to the retention in the ranks of ineffective men, caused by the scruples of invaliding medical committees, has occupied the attention of the Commander-in-Chief.

His Excellency has communicated with the General Commanding-in-Chief Her Majesty's Army on the subject; and he is now pleased to direct that the following instructions shall supersede, in the East Indies, all those of anterior date which may be at variance with them.

1. The regimental authorities (commanding officer and senior medical officer) are authorised to present to the consideration of invaliding committees the cases of all soldiers deemed by them no longer equal to their duties in India, with the view of ascertaining their actual state as to efficiency.

2. Those men who appear permanently unequal to the general duties of soldiers, and are unequal to more than barrack or other minor duties, are not to be retained in India; nor are soldiers who, though not having any palpable medical defect, still may be deemed totally unequal to and not likely to be able to resume their duties.

3. As it not unfrequently happens that soldiers are brought forward for discharge for reasons not strictly medical, on which the invaliding medical officers do not agree with the regimental authorities, or consider that they have not sufficient grounds on which to decide the case in the manner the regimental authorities recommend, the following practice is to be followed in all such cases.

4. A board is to be assembled (consisting of three field officers) by order of the general officer commanding the division in which the regiment is stationed, and all the cases in which the Invaliding Committee may not have agreed with the regimental authorities are to be submitted to their consideration for a final decision.

5. In each case a roll of the soldier, containing the certificate (see annexed form), signed by the commanding officer and medical officer of the soldier's regiment, is to be laid before the board; in which certificate the nature of the disability under which the soldier may labour must be fully set forth, and it must be stated in what manner the disability may have arisen.

6. The board must use the greatest caution and circumspection, so that the decision they may give shall be borne out and confirmed on a fair consideration of all the circumstances of the case, and bear the closest subsequent scrutiny.

7. The regimental authorities must be most careful to guard against malingerers, and never bring forward a man whose case bears the smallest suspicion of having that tendency; and they and the committees to be constituted under this order must carefully keep in mind that men sent home, who are not discharged after arrival in England, become a burthen on their depôts and there remain to the exclusion of recruits.

8. The certificates ordered in the 5th paragraph are to be forwarded by each regiment to the head quarters of their respective presidencies with the other invalid rolls, for the final orders of the Commander-in-Chief in each.

By order of the Commander-in-Chief,
R. TORRENS, Major-Genl.,
Adjt.-Genl. to Her Majesty's Forces in India.

Roll of A. B. of Her Majesty's——Regiment of————, who is deemed a fit subject to be brought before the special Invaliding Committee of Field Officers ordered to be assembled at————, on the——day of————

Name and No. of the Soldier.	Troop or Company.	Rank.	Present. Age.		Service in India.		Character.	Disease, or reason for proposing his discharge.	Brief summary of previous medical treatment.	The decision of the committee and grounds of the opinion formed.
			Years.	Months.	Years.	Months.				

(Signed) G. H. Comdg. the Regt. (Signed) J. K. Surgeon,——Regt. (Signed) A. B.————President.
Exd. P. C. Mookerjee. „ C. D.———— } Members.
„ E. F.———— }

Native Army—Invaliding—Pension. No. 1482. B

To the Secretary to the Government of India, Military Department.

SIR, Adjutant General's Office, Army Head Quarters, Simla, 30th June 1875.

IN continuation of my letter No. 2837B, of the 16th November 1874, I am directed by the Right Hon. the Commander-in-Chief to submit, for the information of Government, the accompanying extract* from "Williams' Historical Account of the Rise and Progress of the Bengal Native Infantry," a work written in 1796 and published in 1817 with the approval of the Board of Control and Court of Directors.

* Appendix A.

2. This extract, coupled with the annexed tables, appears to Lord Napier of Magdala to support the opinion expressed in paragraph 2 of my letter above quoted, as the author, while noting that several years prior to 1796 the pay of the sepoy was, as now, Rs. 7 per mensem, further remarks that with this sum the men were well satisfied, and though called on to defray the expense of hutting themselves, were able to make considerable savings out of their pay.

3. It is the case that hutting money is now allowed to Native troops, but this grant in no way increases their pay, as it but compensates for the cost of wood, which in earlier days could be brought in from adjacent jungles; and for the improved style of hut, which modern sanitary considerations have rendered incumbent, and meets the increased expenditure caused by the prohibition against the old system of trenches, &c. at the front and rear of the huts, from which the walls used to be constructed.

4. It will be observed that the sum now allowed for marching batta to those regiments which still continue to draw that allowance is exactly what it was 80 or 90 years ago, although the weight to be carried and the rates for carriage have, under the orders issued from time to time by Government, considerably increased during that period.

5. After the lapse of time it would be difficult, if not impossible, to obtain reliable comparative statements of the cost of living and clothing in 1796 and 1875, especially as the former depends to a great extent on the station at which a regiment may be quartered and the nature of the harvest. Statements, however, are submitted * from corps with records, which show that although the cost of living has considerably increased even within the last 20 years, the increase, amounting to some Rs. 1-8-7 monthly, is enhanced by the further addition of about Rs. 6-9-11 annually, the difference of the price of regimental necessaries. The aggregate increase in these two items, Rs. 2-1-1 or approximately of one-third, may be accepted as representing the reduced value of the pay, Rs. 7 per mensem, received by the sepoy of 1875.

* Appendix B.

6. Of these statements, that submitted by the officer commanding the 13th Native Infantry has a peculiar value, as that regiment was in 1848 stationed, as it now is, at Benares, and the present officiating commandant was also quartered there at that time, and has therefore been able to report with more certainty than must usually be the case.

7. From this statement it appears that the cost of living at Benares for a Native soldier in 1848 was Rs. 2-4 per mensem, while in 1875 exactly the same quantity and quality of food cost Rs. 5-8-0; and that the regimental necessaries which in 1848 were purchaseable for Rs. 7-0-0, cost in 1875 Rs. 15-3-0. In the statements submitted is not included the cost of the first kit of a recruit, which would much enhance the total deductions from a soldier's pay, against which the only compensating actual increase since 1796 has been the good-conduct pay.

8. In the Appendix * will also be found returns showing the prices of the staple articles of the food of the native soldier in the various large military stations in this presidency in 1860, 65, 70, 75, and also of the average number of recruits which have been with each regiment during the past five years. The former of these statements shows the fluctuating value of food according to the nature of successive harvests, and proves that in times of dearness the prices of provisions would be prohibitory to sepoys were it not for the system of compensation for dearness of provisions when prices rise above a fixed standard. The return of recruits is submitted, with a view of showing how large a deduction it is necessary to make on this account from the effective strength of the army.

* Appendices C., D.

9. An abstract * of the replies from officers commanding regiments on the subject of the difficulty of obtaining recruits is submitted for the consideration of Government, as a large number of these answers support the view already expressed, that where such difficulties exist they are attributable in a measure to the growing unpopularity of the military service, the result of the decreased value of a rate of pay which, fixed many years ago, was then suitable for the necessities and requirements of a soldier, but now leaves him, when all deductions are paid, but the means of bare subsistence. A fact which appears to have a special bearing on this question is, that out of an army of 37,036 men under the orders of the Commander-in-Chief, 17,465 are under six years' service, showing that a very large number of men do not find it worth while to remain long enough to entitle them to the first rate of good-conduct pay.

* Appendix E.

Paras. 6 and 9 of Adjutant General's letter 2837B, of 16th November 1874.

* Appendix F.

I have, &c.
(Signed) P. S. Lumsden, M.G.
Adjutant-General in India.

Appendix A.

Extract from Captain Williams' History of the Bengal Native Infantry from 1757 to 1796, pages 261 and 262.

The pay of the Native troops has not undergone any alteration for a long course of years. The private sepoy receives seven rupees per month in all stationary situations, and eight rupees and a half when marching or in the field, exclusive of half a rupee per month allotted to the off-reckoning fund, for which they receive one coat, and nothing more, annually. From that allowance, with which generally speaking they are very well satisfied, they not only provide themselves with every thing they require for food and raiment in all situations, but they also erect cantonments for themselves in all stationary situations, at their own expense; and, moreover, there are but few amongst them who do not make considerable savings from their pay in the course of the year, which they carry or remit to their families, for their general maintenance and comfort. Indeed such is the beneficence of their character in this respect, that when they proceed on foreign service an extensive official arrangement is adopted, on the part of Government, for remitting to the families and connexions of the Native soldiery a handsome portion of their pay during their absence.

Appendix B.

Returns showing the Comparative Cost of Living, and the Price paid for Articles of Regimental Necessaries by a Sepoy between the years 1848 and 1875.

2nd Regiment Native Light Infantry.

1848.	Amount. Rs.	A.	P.	1875.	Amount. Rs.	A.	P.
To 30 srs. of attah, at 24 srs. per rupee	1	4	0	To 30 srs. of attah, at 11 srs. 15 chks. per rupee.	2	8	0
„ $3\frac{3}{4}$ srs. dhall, at 26 srs. per rupee -	0	2	$3\frac{1}{2}$	„ 3 srs. of dhall, at 11 srs. $10\frac{3}{4}$ chks. per rupee.	0	4	$1\frac{1}{2}$
„ 1 sr. and 15 chks. ghee, at $2\frac{7}{8}$ srs. per rupee.	0	10	$9\frac{1}{4}$	„ 1 sr. 15 chks. ghee, at 1 sr. 15 chks. per rupee.	1	0	0
„ Sugar $7\frac{1}{2}$ srs., at $7\frac{1}{2}$ srs. per rupee and salt 15 chks., at 10 srs. per rupee.	1	1	6	„ Sugar $7\frac{1}{2}$ srs., at 3 srs. $4\frac{1}{2}$ chks. per rupee, and salt 15 chks., at 7 srs. 12 chks. per rupee.	2	6	5
„ Firewood $1\frac{1}{2}$ md., at 5 mds. per rupee.	0	4	$9\frac{1}{4}$	„ $1\frac{1}{2}$ maunds firewood, at 2 mds. 20 srs. per rupee.	0	9	6
„ Tobacco 1 sr. 14 chks., at 5 srs. per rupee.	0	6	0	„ 1 sr. 14 chks. tobacco, at 5 srs. per rupee.	0	6	0
Total cost of living - Rs.	3	13	$4\frac{1}{4}$	Total cost of living - Rs.	7	2	$0\frac{1}{2}$
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To 2 plain turbans, at 0 11 0 each -	1	6	0	To 2 plain turbans, at 1 0 0 each	2	0	0
„ 2 koortas „ 0 7 0 „ -	0	14	0	„ 2 koortas „ 0 10 0 „	1	4	0
„ 2 anggas „ 0 12 0 „ -	1	8	0	„ 2 mirzaies „ 0 12 0 „	1	8	0
„ 2 pyjamas „ 0 14 0 „ -	1	12	0	„ 2 pyjamas „ 1 4 0 „	2	8	0
„ 2 dhotees „ 1 0 0 „ -	2	0	0	„ 2 dhotees „ 1 8 0 „	3	0	0
„ 1 durrie „ 1 4 0 „ -	1	4	0	„ 2 sheets „ 1 4 0 „	2	8	0
„ 1 rizzaie „ 1 8 0 „ -	1	8	0	„ 1 durrie „ 2 8 0 „	2	8	0
				„ 1 rizzaie „ 3 6 0 „	3	6	0
Total cost of regimental necessaries	10	4	0	Total cost of regimental necessaries	18	10	0

5th Native Light Infantry.

1848.	Amount. Rs.	A.	P.	1875.	Amount. Rs.	A.	P.
To 30 srs. attah, at 18 srs. per rupee -	1	10	8	To 30 srs. of attah, at $16\frac{29}{64}$ srs. per rupee.	1	13	3
„ $3\frac{3}{4}$ srs. dhall, at 17 srs. per rupee -	0	3	7	„ $3\frac{3}{4}$ srs. of dhall, at $12\frac{1}{64}$ srs. per rupee.	0	8	8
„ 1 sr. and 14 chks. ghee, at $1\frac{3}{4}$ sr. per rupee.	1	1	2	„ 1 sr. 14 chks. ghee, at $1\frac{13}{16}$ srs. per rupee.	1	0	10
„ Supar, or goor, and salt - -	0	4	3	„ Sugar, or goor, and salt - -	0	5	3
„ Firewood - - - -	0	8	0	„ Firewood - - - -	0	9	8
„ Tobacco - - - -	0	4	0	„ Tobacco - - - -	0	4	0
Total cost of living - Rs.	3	15	8	Total cost of living - Rs.	4	9	8
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To 2 plain turbans - - -	2	4	0	To plain turbans - - -	2	10	0
„ Koortas / „ Anggas } 2 of one or the other -	2	0	0	„ Koortas / „ Mirzaies } 2 of one or the other	2	0	0
„ Pyjamas / „ Dhotees } 2 of one or the other -	2	4	0	„ Pyjamas / „ Dhotees } 2 of one or the other	2	6	0
„ 1 durree - - - -	2	0	0	„ Sheets - - - -	2	0	0
„ 1 rizzaie - - - -	2	12	0	„ Durree - - - -	1	14	6
				„ Rizzaie - - -	3	8	0
Total cost of regimental necessaries	11	4	0	Total cost of regimental necessaries	14	6	6

6th Bengal Light Infantry.

1848.	Amount. Rs.	A.	P.	1875.	Amount. Rs.	A.	P.
To 30 srs. of attah, at 32 srs. per rupee	0	15	0	To 30 srs. of attah, at 15½ srs. per rupee	1	14	11
„ 3¾ srs. dhall, at 60 srs. per rupee	0	1	0	„ 3 srs. of dhall, at 18 srs. 3 chs. per rupee.	0	2	7
„ 1 sr. and 15 chks. ghee, at 3 srs. per rupee.	0	10	4	„ 1 sr. 15 chks. ghee, at 1 sr. 10¼ chks. per rupee.	1	2	10
„ Sugar, or goor, and salt - -	0	2	0	„ Sugar, or goor, and salt - -	0	1	0
„ Firewood (2 srs. a day, at 5 mds. per rupee).	0	4	10	„ Firewood, 2 srs. a day, at 3¼ mds.	0	7	6
„ Tobacco - - - -	0	1	0	„ Tobacco - - - -	0	3	0
Total cost of living - Rs.	2	2	2	Total cost of living - Rs.	3	15	10
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To 2 plain turbans (for wear off duty with native suit).	1	0	0	To 2 plain turbans (for wear off duty with native suit).	1	4	0
„ 2 koortas (uniform jackets) -	1	6	0	„ 2 koortas (uniform, Zouave pattern tunic).	3	15	0
„ 2 anggas (for wear off duty with native suit).	1	0	0	„ 2 mirzaies (for wearing off duty with native suit).	1	0	0
„ 2 pyjamas (uniform trousers) -	2	0	0	„ 2 pyjamas (uniform knickerbockers)	4	4	0
„ 2 dhoties (for wear off duty with native suit and with uniform).	1	12	0	„ 2 dhoties (for wear off duty with native suit and with uniform).	1	13	0
„ 1 durree - - - - -	1	0	0	„ 2 sheets - - - -	1	13	6
„ 1 rizzaie - - - -	1	12	0	„ 1 durree - - - -	2	1	0
				„ 1 rizzaie - - - -	2	4	0
Total cost of regimental necessaries	9	14	0	Total cost of regimental necessaries	18	6	6

13th Regiment, Native Infantry.

1848.	Amount. Rs.	A.	P.	1875.	Amount. Rs.	A.	P.
To 30 srs. of attah, at 30 srs. per rupee	1	0	0	To 30 srs. of attah, at 12 srs. per rupee	2	8	0
„ 3¾ srs. dhall, at 20 srs. per rupee -	0	3	0	„ 3 srs. of dhall at 15 srs. per rupee -	0	5	0
„ 1 sr. and 15 chks. ghee at 4¼ srs. per rupee.	0	7	0	„ 1 sr. 15 chks. ghee at 1¾ srs. per rupee.	1	2	0
„ Sugar, or goor, and salt - -	0	4	0	„ Sugar, or goor, and salt - -	0	9	0
„ Firewood - - - -	0	4	0	„ Firewood - - -	0	10	0
„ Tobacco - - - -	0	2	0	„ Tobacco - - - -	0	6	0
Totol cost of living - Rs.	2	4	0	Total cost of living - Rs.	5	8	0
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To 2 plain turbans - - -	0	8	0	To 2 plain turbans - - -	1	8	0
„ 2 koortas - - - -	0	12	0	„ 2 koortas - - -	1	6	0
„ 2 anggas - - - -	0	0	0	„ 9 mirzaies - - -	1	6	0
„ 2 pyjamas - - - -	1	12	0	„ 2 pyjamas - - -	1	12	0
„ 2 dhotees - - - -	0	4	0	„ 2 dhotees - - -	1	12	0
„ 1 durree - - - -	1	0	0	„ Sheets - - - -	1	11	0
„ 1 rizzaie - - - -	1	12	0	„ Durree - - - -	2	0	0
				„ Rizzaie - - - -	3	12	0
Total cost of regimental necessaries -	7	0	0	Total cost of regimental necessaries -	15	3	0

20th Regiment, Native Infantry.

1860.	Amount. Rs.	A.	P.	1875.	Amount. Rs.	A.	P.
To srs. of attah, at srs. per rupee -	*—	—	—	To 30 srs. of attah, at $18\frac{3}{16}$ srs. per rupee.	1	10	5
„ srs. dhall, at srs. per rupee -	—	—	—	„ $3\frac{3}{4}$ srs. of dhall, at $12\frac{5}{16}$ srs. per rupee.	0	4	11
„ sr. and chks. ghee, at srs. per rupee.	—	—	—	„ 1 sr. 14 chks. ghee, at $1\frac{1}{16}\frac{1}{16}$ srs. per rupee.	1	1	3
„ Sugar, or goor, and salt - -	—	—	—	„ Sugar, or goor, and salt - -	0	0	2
„ Firewood - - - -	—	—	—	„ Firewood (without langrees) -	0	7	6
„ Tobacco - - - -	—	—	—	„ Tobacco - - - -	0	7	6
Total cost of living - Rs. -	—	—	—	Total cost of living - Rs.	3	15	9
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To 2 plain turbans - - -	3	0	0	To 2 plain turbans - - -	3	0	0
„ 2 koortas - - - -	1	2	0	„ 2 koortas - - - -	1	4	0
„ anggas - - - -	0	0	0	„ mirzaies - - -	0	0	0
„ 2 pyjamas - - -	1	6	0	„ 2 pyjamas - - -	1	8	0
„ 1 dhotee - - - -	0	0	0	„ dhotees - - -	0	0	0
„ 1 duree - - - -	2	0	0	„ 2 sheets - - - -	2	0	0
„ 1 rizzaie - - - -	3	6	0	„ 1 durree - - - -	3	0	0
				„ 1 rizzaie - - - -	3	8	0
Total cost of regimental necessaries -	10	14	0	Total cost of regimental necessaries -	14	4	0

* No record; regiment in China.

26th Regiment, Native Infantry.

1860.	Amount. Rs.	A.	P.	1875.	Amount. Rs.	A.	P.
To 31 srs. of attah, at $13\frac{5}{16}$ srs. per rupee	2	5	3	To 31 srs. of attah, at $18\frac{3}{4}$ srs. per rupee	1	11	6
„ $3\frac{7}{8}$ srs. dhall, at $13\frac{7}{16}$ srs. per rupee	0	4	7	„ $3\frac{7}{8}$ srs. of dhall, $25\frac{17}{32}$ srs. per rupee	0	4	0
„ $1\frac{15}{16}$ srs. ghee, at $2\frac{7}{32}$ srs. per rupee	0	14	1	„ 1 sr. 15 chks. ghee, at $1\frac{9}{16}$ srs, per rupee.	1	3	11
„ Sugar, or goor, and salt - -	0	8	7	„ Sugar, or goor, and salt - -	0	7	8
„ Firewood - - - -	0	6	2	„ Firewood - - - -	0	9	7
„ Tobacco - - - -	0	7	9	„ Tobacco - - - -	0	3	10
Total cost of living - Rs.	4	14	5	Total cost of living - Rs.	4	8	6
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To plain turbans - - -	3	1	11	To plain turbans - - -	3	2	0
„ koortas - - - -				„ koortas - - -	0	6	6
„ anggas - - - -				„ mirzaies - - -	0	0	0
„ pyjamas - - - -				„ pyjamas - - -	0	4	9
„ dhotees - - - -				„ dhotees - - -	0	0	0
„ durree - - - -				„ sheets - - - -	0	0	0
„ rizzaie - - - -				„ durree - - - -	1	12	0
				„ rizzaies - - -	3	13	0
Total cost of regimental necessaries	22	4	5	Total cost of regimental necessaries	30	6	3

Abstract.

Regiment.	Cost of Living. 1848. Rs.	A.	P.	1875. Rs.	A.	P.	Price of Regimental Necessaries. 1848. Rs.	A.	P.	1875. Rs.	A.	P.
2nd Regiment Native Infantry	3	13	4	7	2	1	10	4	0	18	10	0
5th „ „	3	15	8	4	9	8	11	4	0	14	6	6
6th „ „	2	2	2	3	15	10	9	14	0	18	6	6
13th „ „	2	4	0	5	8	0	7	0	0	15	3	0
	1860.						1860.					
26th „ „	No record			3	15	9	10	14	0	14	4	0
20th „ „	4	14	5	4	8	6	22	4	5	30	6	3
Average - -	3	6	8	4	15	3	11	14	9	18	8	8

Difference, monthly cost of living - - - - - Rs. 1 8 7
Difference, annual price of regimental necessaries - - - „ 6 9 11

APPENDIX C.

NERRICK RETURN for Bengal, North-West Provinces, Oude, and Punjab for 1860–65, 1870–75, Simla, 3rd May 1875.

Dinapore, Gorakpur, and Benares.

Year.	Corps.	Attah.		Rice.		Dall.		Ghee.		Salt.		—
		Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	
1860	35th N. I.	18	9	18	1	21	12	1	15	6	13	Dinapore.
1865	26th „	10	14	8	13	8	9	1	12	6	0	Gorakpur.
1870	5th „	9	0	10	2	10	5	1	4	7	1	Benares.
1875	2nd „	12	1	12	0	11	6	1	15	7	12	Dinapore.
	Totals 4)	50	8	49	0	52	0	6	14	27	10	
	Average	12	10	12	4	13	0	1	11	6	14	

Barrackpore and Alipore.

1860	18th N. I.	8	0	17	8	10	0	1	12	7	0	Alipore.
1865	6th „	13	9	12	6	13	5	1	6	7	11	} Barrackpore.
1870	13th „	8	12	7	10	10	11	1	2	7	8	
1875	39th „	9	1	11	5	10	0	1	4	8	0	
	Totals 4)	39	6	48	13	44	0	5	8	30	3	
	Average	9	11	12	3	11	0	1	6	7	5	
	Average for Bengal	11	4	12	3	12	0	1	8	7	1	

Cawnpore and Agra.

1860	17th B. Cavy.	14	0	7	0	14	4	2	0	7	0	Cawnpore.
1865	37th N. I.	11	6	8	0	12	10	1	12	6	1	Agra.
1870	10th „	13	3	10	0	15	8	1	7	7	3	} Cawnpore.
1875	35th „	17	6	15	0	19	11	2	1	7	0	
	Totals 4)	55	15	40	0	61	13	7	3	27	4	
	Average	14	0	10	0	15	7	1	13	6	13	

Meerut.

1865	12th B. Cavy.	8	7	5	12	10	0	1	8	7	6	
1870	8th „	12	7	18	0	16	2	1	5	8	2	
1875	5th N. I.	16	7	10	10	12	0	1	13	7	11	
	Totals 3)	37	5	25	6	38	2	4	10	23	3	
	Average	12	7	8	7	12	11	1	8	7	11	
	Average for N. W. P.	13	5	9	5	14	4	1	11	7	3	

Lucknow.

1860	16th B. Cavy.	19	13	13	12	18	3	1	12	6	3	
1865	7th „	13	6	9	13	12	11	1	13	5	5	
1870	9th N. I.	13	9	7	10	5	15	1	6	5	11	
1875	6th „	15	1	15	9	18	4	1	10	5	12	
	Totals 4)	61	13	46	12	54	13	6	9	12	25	
	Average	15	7	11	11	13	11	1	10	5	12	

Sitapur and Fyzabad.

Year.	Corps.	Attah.		Rice.		Dall.		Ghee.		Salt.		
		Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	
1860	6th B. Cavy.	17	15	7	12	13	12	1	15	5	14	Sitapur.
1865	8th N. I.	14	11	7	9	12	14	2	0	6	9	Sitapur.
1870	17th „	11	12	6	8	13	0	2	1	5	8	Sitapur.
1875	8th „	16	6	12	0	14	10	2	1	5	5	Fyzabad.
	Totals - 4)	60	12	33	13	54	4	8	1	13	4	
	Average	15	3	8	7	13	9	1	0	5	13	
	Average for Oude	15	5	10	1	13	10	1	13	5	12	

Meean Meer and Ferozepore.

1860	4th Goorkhas	15	1	10	0	12	0	2	2	7	11	Ferozepore.
1865	21st N. I.	15	11	7	2	17	1	1	12	9	3	Meean Meer.
1870	35th „	10	14	9	5	12	0	1	3	8	14	Meean Meer.
1875	25th „	19	4	8	0	20	0	1	10	10	0	Meean Meer.
	Totals - 4)	60	14	34	7	61	1	6	11	35	12	
	Average	15	3	8	10	15	4	1	11	9	0	

Rawal Pindi.

1860	1st N. I.	13	0	11	0	12	4	11	10	8	0
1865	2nd Goorkhas	20	8	12	5	18	8	2	3	10	11
1870	24th N. I.	15	0	10	0	9	8	1	10	10	14
1875	14th „	25	5	7	0	10	11	2	5	10	11
	Totals - 4)	73	13	40	5	50	15	7	12	40	4
	Average	18	7	10	1	12	12	1	15	10	1
	Average for Punjab	16	13	9	5	14	0	1	13	9	8

Abstract.

Bengal	11	4	12	3	12	0	1	8	7	1
N. W. Provinces	13	5	9	5	14	4	1	11	7	3
Oude	15	5	10	1	13	10	1	13	5	12
Punjab	16	13	9	5	14	0	1	13	9	8

Appendix D.

Return showing the average Number of Recruits present on the first of each month during the past five years, in Regiments of Native Cavalry and Infantry.

Regiments.	No. of Recruits.	Regiments.	No. of Recruits.
1st Bengal Cavalry	20	18th Native Infantry	70
2nd " "	27	19th " "	73
3rd " "	39	20th " "	98
4th " "	22	21st " "	94
5th " "	41	22nd " "	100
6th " "	14	23rd " "	46
7th " "	19	24th " "	75
8th " "	26	25th " "	75
9th " "	36	26th " "	58
10th " "	31	27th " "	57
11th " "	28	28th " "	75
12th " "	46	29th " "	59
13th " "	20	30th " "	58
14th " "	17	31st " "	68
15th " "	9	32nd " "	43
16th " "	33	33rd " "	33
17th " "	33	34th " "	36
18th " "	26	35th " "	74
19th " "	38	36th " "	64
1st Native Infantry	64	37th " "	51
2nd " "	46	38th " "	52
3rd " "	43	39th " "	65
4th " "	86	40th " "	45
5th " "	33	41st " "	44
6th " "	74	42nd " "	89
7th " "	19	43rd " "	64
8th " "	66	44th " "	67
9th " "	50	45th " "	64
10th " "	62	1st Goorkhas	73
11th " "	53	2nd "	50
12th " "	63	3rd "	28
13th " "	39	4th "	28
14th " "	40	Sappers and miners	123
15th " "	77		
16th " "	34	Total	3,539
17th " "	66		

Average strength of Native army - - - - 44,290
Percentage of recruits - - - - - 8

Appendix E.

Abstract of Replies from Officers commanding Regiments of Native Cavalry and Infantry as to the difficulty or otherwise of obtaining good Recruits.

Regiments.	Abstract of Replies.
1st Bengal Cavalry	No difficulty in procuring recruits of good physique, but they do not equal the old soldiers.
2nd ditto	No difficulty whatever in the 2nd Bengal Cavalry.
3rd ditto	No difficulty whatever.
4th ditto	Recruits of good physique do not come forward in such numbers as was formerly the case in Bengal Cavalry Regiments. I attribute this to several causes. In the first place, pay does not go so far as it used to, and the would-be recruit invests his spare cash in land, in preference to the service. Land and its produce is increasing yearly in value, while the relative value of pay is decreasing. Able-bodied men are therefore retained to till it, while those only who are disinclined or unable through physical causes to do the hard work that cultivators go through, constitute the recruits of the service.
5th ditto	I have not found any difficulty in obtaining good recruits of the proper standard.

Regiments.	Abstract of Replies.
6th Bengal Cavalry -	We have to depend to a great extent on family recruiting, for, as I believe, owing to the much lower value of the pay now to what it was ten years ago, the service is not so popular among the classes that in former years flocked for enlistment in the Cavalry. The Pathan recruits are not equal in appearance or physique to the men enlisted when the troop was raised in Peshawur in '63–64. In this regiment the Sikh recruits are also not up to their former standard. The fact of their being no Sikh commissioned officer is, no doubt, a principal cause, but another cause and a very great one in the eyes of a thrifty race, as the Sikhs are, is the yearly increasing expense of the service and of living.
7th ditto -	Suitable recruits with money to invest in the purchase of "Assamees" have been difficult to obtain during late years, but by assisting them with money I have had no difficulty in procuring men in sufficient numbers and of good physique, although the youngsters who now enlist are certainly not of the same born-soldier class that one formerly got, but men necessarily do not now train their sons to the profession of arms as they did.
8th ditto -	I have experienced no difficulty in securing recruits of good physique and of respectability of character, since I have been in command of the regiment.
9th ditto -	No very remarkable difficulty, but still it is observable that there are not the same number of "hangers on" (Oomedwars) waiting for service, as formerly.
10th ditto -	In the Jat troop there is difficulty. There is no difficulty in enlisting for the other troops men in every way suitable for the regiment.
11th ditto -	No difficulty has been felt in the 11th Bengal Lancers, since the regiment returned to the Punjab. While the regiment was at Allahabad some slight difficulty was experienced in obtaining Pathan and Dogra recruits in every way suitable.
12th ditto -	I have experienced no difficulty in procuring recruits of good physique of late years.
13th ditto -	In the 13th Bengal Lancers not the slightest difficulty has been experienced in securing good recruits.
14th ditto -	Ever since the Bhootan campaign, I have experienced more or less difficulty in obtaining recruits of the proper class and stamp; the majority, instead of being the sons of land owners and respectable farmers, are either their poor relations, or agricultural labourers.
15th ditto -	No difficulty has been experienced in obtaining recruits of good physique. Difficulty has always been experienced in obtaining among the classes from which the 15th Bengal Cavalry is recruited, men possessed of sufficient means to purchase Assamees, but this difficulty has not increased of late years.
16th ditto -	Recruits with the necessary requirements I have always been able to obtain hitherto, but at Peshawur I had a little difficulty as the down-country men did not care about serving so far from their homes.
17th ditto -	As yet I have experienced no difficulty in getting recruits of suitable physique.
18th ditto -	It was found very difficult to get a good stamp of Jat and Rajpoot recruits; this was because I believe these classes found themselves so very much better off as Zemindars. There is no difficulty in procuring Punjabee Mahomedans or Sikhs, of good physique, though the former are very impecunious and generally require assistance.
19th ditto -	Considerable difficulty has been experienced during the last three or four years in procuring recruits of good physique. Pathans as a rule will not take service at a great distance from their homes, except in war time, and those already enlisted are very apt to get home-sick and apply for their discharge when their regiment is stationed out of the Punjab. Punjabee Mahomedans from the Jhelum and Salt Range districts, of good physique and who make good cavalry soldiers in peace time, are more easily procurable than either of the above classes, and we have drawn largely from those parts in the last two years.
1st Native Infantry -	There is no difficulty in obtaining recruits of good physique.
2nd ditto -	I have found no difficulty up to the present time.
3rd ditto -	Of late years the men are not so fine as those that used to enlist in the Bengal Army.
4th ditto -	The difficulties as compared with former years in obtaining recruits of the same class and equal in physique is very great. For this there are many reasons. I do not think the army is now so attractive as it was.
5th ditto -	Difficulty has been experienced in obtaining good recruits.
6th ditto -	Of late years great difficulty has been experienced in securing recruits of good physique. Sooner than have any men of an indifferent physique in the regiment, it has been allowed to remain under strength.
7th ditto -	No difficulty has been experienced in procuring recruits of the standard height and of good physique during the last few years.
8th ditto -	No difficulty has been experienced in obtaining recruits of good physique in this regiment.
9th ditto -	No difficulty to speak of; though Goorkhas from Nepal and Dograhs of good stamina are not easy to get.
10th ditto -	Recruiting parties have experienced great difficulty in obtaining recruits of good physique, who object to serve in Lower Bengal, owing as they state to the bad water and sickness.
11th ditto -	There has been no difficulty during the past three years during the stay of the regiment at Bareilly in getting recruits of good physique.

Regiments.	Abstract of Replies.
12th Native Infantry -	Difficulty has been experienced in obtaining recruits of late years, and particularly so of good physique. The men find it very difficult to maintain themselves on their pay, at the present time, when the price of everything has increased so very largely.
13th ditto -	There has been no difficulty in procuring recruits of good physique, yet at the same time the men who now enlist do not appear to me to be of the size and build of those of former years, say 20 to 25 years of age.
14th ditto -	No difficulties have been experienced in securing good recruits for the regiment.
15th ditto -	I have had no difficulty during the 13 years that I have commanded the regiment in getting recruits, and there has been no falling off in physique; but the regiment, being essentially a Sikh regiment, is a favourite with men of that class.
16th ditto -	No difficulty has been experienced.
17th ditto -	There has been great difficulty in procuring good recruits of late years, and many are discharged as physically unfit after a short trial. At present there are 35 vacancies in the 17th Regiment Native Infantry.
18th ditto -	I do not consider that the 18th Regiment Native Infantry has experienced any real difficulty of late years in securing recruits of good physique.
19th ditto -	Difficulty has of late years been experienced in obtaining good recruits, especially Sikhs.
20th ditto -	This regiment has been inspected during the last week by the Brigadier General commanding. He has remarked that he does not think the recruits come up to the good material in the regiment. They are not so good in point of physique. One difficulty I have experienced has been owing to the regiment having been stationed so far down as Delhi; but I think another difficulty can be fairly put down to the sepoy's pay being so small that it is not sufficient to attract the best men. A recruit has to pay a great deal for his half-mounting.
21st ditto -	Great difficulty is experienced in obtaining a good stamp of Sikh recruits for the Native army, owing to the increased demand for these men not only for the Bengal but for the Bombay army.
22nd ditto -	It has for some years past been very difficult to get good recruits, owing, I think, to most of the Bombay Native regiments recruiting from the Punjab, as also to the service not being attractive enough on account of the pay being so small.
23rd ditto -	There is in my opinion an undoubted difficulty in obtaining recruits of good physique, but I find that men improve physically in a marvellous manner after they have been a few months in the service, from a sufficiency of food, &c. This tends to prove that none but those in the poorest circumstances enlist. In India, as elsewhere, the labour market bids against the State for able-bodied men, and I do not think that the inducements offered by the State are sufficiently good to attract the best men to the military service. I refer only to Muzbees, of which class my regiment is exclusively composed.
24th ditto -	Difficulty has been experienced in recruiting Sikhs from the Manjha districts.
25th ditto -	I have not had any difficulties to contend with in the enlistment of recruits of good physique.
26th ditto -	Considerable difficulty has been experienced by recruiting parties in obtaining good Sikh recruits away from the regiment. Of the recruits brought by them many have to be sent to their homes again, as physically unfit. Good Pathans are obtainable, but the excessive recruiting that takes place from that class in *British territory* renders them few in numbers. Good Dogras are now difficult to obtain; the military spirit seems to be leaving the class.
27th ditto -	Recruits of good physique, more especially Sikhs, are more difficult to be procured of late years.
28th ditto -	No difficulty has been experienced of late years in securing recruits of good physique.
29th ditto -	Great difficulty has been experienced of late years in securing recruits of good physique, and the difficulty seems to be increasing. This may be assigned to the fact that the service is less profitable to the soldier than formerly; while labour wages and prices have increased on all sides, his pay has not increased in a corresponding degree.
30th ditto -	The recruits enlisted during the last four or five years are not of as good physique as they ought to be; though no difficulty has been experienced in keeping up the establishment of the 30th Regiment Punjab Native Infantry, recruiting parties cannot obtain really good able-bodied men.
31st ditto -	The demand for recruits every year is very great, as all regiments in the Bengal and Bombay Presidencies, having Punjabees in them, send recruiting parties to the Punjab; hence there is a difficulty in procuring good men.
32nd ditto -	I have found no difficulty in procuring good recruits for the regiment.
33rd ditto -	Great difficulty has been experienced in obtaining Aheers of a proper standard and physique.
34th ditto -	Since I assumed the command of the 34th Regiment Native Infantry (*i.e.* in 1861) I have never had any difficulty in getting recruits of the high castes. These I can get in any number and *pick* them. At Jhansie and at Morar and in Bengal (Barrackpore) I *had* much difficulty in getting "Mehters" and "low caste."

Regiments.	Abstract of Replies.
35th Native Infantry -	Difficulty has been experienced in securing recruits of good physique for the 35th Native Infantry, but that only of late years. I assign the cause to the scarcity of men of the necessary physique in many of the castes of which this regiment is composed.
36th ditto -	Men of sufficiently good physique can be obtained, but many who present themselves at regimental head quarters, and *many* who are passed into the service at a distance are very inferior and must be rejected. Thus to get a good body of men there must be a careful and judicious selection. This takes time and causes there being always many vacancies in the ranks. I have never found any difficulty in getting good Jât Sikhs from Puttialla and thereabouts, but a considerable proportion of Rajpoots and Bramins, and a greater number of Aheer, Gwallas, Jats, and Kurnees have to be rejected. It is very difficult to get good Jats for the infantry.
37th ditto -	No difficulty has been experienced in getting suitable recruits of good physique.
38th ditto -	*Chuttries, Aheers, and Koormies.*—In the way of enlisting these castes difficulties exist, owing to the distance of Buxa from the recruiting districts and the unpopularity amongst Hindoostanees of the station. A Native officer who was in command of one of the recruiting parties last year informed me that he could have readily brought many more men than he did had not the station of Buxa been in disrepute in the districts he visited. Jats, of which race there should be two companies in the regiment, are difficult to procure, owing to (I believe) an admitted disinclination on the part of these men to infantry service.
39th ditto -	There has been considerable difficulty of late years in getting recruits of really good physique.
40th ditto -	There certainly is a difficulty in securing recruits of intelligence and of good physique. Men of intelligence and of respectable families are not attracted by an offer of rupees seven per mensem, less deduction on account of clothing.
41st ditto -	Of late years recruiting has been more difficult, and as compared with old times there is a very marked change. Formerly men used to seek service. When my old regiment, the 61st Native Infantry, marched from Lucknow for the Punjab in 1854 some 50 fully trained supernumeraries accompanied it. Now recruits have mostly to be sought, and many are anxious to get away as soon as three years are completed.
42nd ditto -	It has been found very difficult to obtain "Goorkhas" of good physique. Also the "Jurwahs" who present themselves for enlistment are not such good men as of former years.
43rd ditto -	No difficulty has been experienced in securing recruits of good physique; the physique of the regiment generally has materially improved within the last few years.
44th ditto -	No difficulty has been experienced by the recruiting parties sent out annually of late years to obtain recruits; but few recruits of the Goorkha caste, of which the regiment is mainly composed, have presented themselves for enlistment at head quarters since the regiment left Shillong and descended to the plains.
45th ditto -	We have always had difficulty in procuring recruits from the Mangha Sikh districts, from which we principally enlist, as from the opening up of the canals they have become more wealthy; the Malwaie Sikh districts more readily afford recruits except in seasons of plenty; but the low pay of the Sepoy with the liability to serve in Bengal, the usual food of which country is unsuitable to the Sikh, and therefore his expenses are rendered heavier than the Poorbeeah or most other castes. Until the last year we have always got Sikhs of very good physique; we obtained the best in the years 1871 and 1872, and the worst this year.
1st Goorkhas - -	During the six years and nine months I have commanded the regiment I have never experienced any difficulty in procuring Goorkha recruits of good physique and proper caste. On this date there is not a single vacancy in any grade in the regiment.
2nd ditto - -	This regiment is recruited principally from Nepaul; men who go on furlough bring back their relatives, and recruiting parties are sent down to attend the fairs held along the British and Nepaul borders. I cannot state positively that we have had great difficulty in securing recruits of good physique of late years. This regiment has not required any great number in any one year. I may mention that it has just taken us nearly four months to obtain 20 young Goorkhas.
3rd ditto - -	No difficulty in procuring the number required. Physique of recruits last joined excellent, regiment up to established strength, and 10 good lads waiting for vacancies.
4th ditto - -	No difficulty has been experienced of late years in securing recruits of good physique.
Sappers and Miners -	Difficulty has been experienced of late years in securing recruits of good physique.

APPENDIX F.

BENGAL NATIVE ARMY.

Total strength on 1st June 1875 { Cavalry Sowars - 7,232 / Infantry Sepoys - 29,804 }			37,036
Number of Sowars and Sepoys under 6 years' service, and consequently not in receipt of good-conduct pay:			
Cavalry - - -	3,308	17,465	
Infantry - - -	14,157		
Number of Sowars and Sepoys with 6 years' service and upwards, who have forfeited good-conduct pay in consequence of misconduct:			17,757
Cavalry - - -	71	292	
Infantry - - -	221		
Number of Sowars and Sepoys of upwards of 6 years and under 10 years' service, in receipt of the first rate of good-conduct pay, at Rupee 1:			
Cavalry - - -	1,422	9,204	
Infantry - - -	7,782		
Number of Sowars of upwards of 10 years' and under 15 years' service, and Sepoys of upwards of 10 years' service, in receipt of the second rate of good-conduct pay, at Rupees 2:			19,279
Cavalry - - -	976	8,620	
Infantry - - -	7,644		
Number of Sowars of upwards of 15 years' service, in receipt of the third rate of good-conduct pay, at Rupees 3:			
Cavalry - - -	1,455	1,455	
Number of Sowars and Sepoys of 30 years' service and upwards:			
Cavalry - - -	66		
Infantry - - -	26		
Total -	92		

According to the last statement (dated 3rd December 1874) from the Controller of Military Accounts, there were 33,690 pensioners from the Bengal Army in receipt of pension.

P. S. LUMSDEN, Major-General,
Adjutant-General in India.

Adjutant-General's Office,
Head Quarters, Simla, 16th June 1875.

Organization.—Native Army.

Confidential. No. 781. Government of India, Military Department.
To the Adjutant-General.

SIR, Fort William, the 17th February 1875.

I AM directed by the Right Honourable the Governor-General in Council to invite the attention of his Excellency the Commander-in-Chief to certain subjects connected with the Native army, especially with regard to the present system for the appointment and promotion of officers, to which his Excellency has not referred in the Adjutant-General's letter, No. 2837B, of the 16th November, and the Quartermaster-General's letter No. 357C of the 12th December last, but which have already occupied the attention of the Viceroy, and the consideration of which has been deferred until the assent of the Home Government had been obtained to the plan for allowing officers to commute their prospective interest in colonel's allowances. I am to request you to move his Excellency to make any suggestions that may occur to him as practicable for improving the system in any respect in which Lord Napier of Magdala may consider it to be now defective.

2. There are several points in the present system on which the Governor-General in Council would be glad to have the opinion of his Excellency, and doubtless there will be others connected with this subject on which the Commander-in-Chief will desire to remark. I am directed to indicate the following as of importance:—

I.—Does the present mode of appointing British officers to the Staff Corps work well as respects providing officers for the Native army, and is it attended with injury to British regiments?

If the system is inconvenient, what alteration in it would his Excellency recommend?

II.—Is it possible under the present system to retain and advance officers in the same regiments with due regard to the claims of other officers, and should not some regulation on the subject be laid down, in order that the procedure in making promotions may be based on uniform principles, and not liable to change according to the views of each Commander-in-Chief.

If such regulations are desirable, his Excellency is requested to suggest a rough draft.

III.—Does it often happen that senior officers are serving under the orders of juniors in Native regiments; and if this is the case, and inconvenience has arisen, how is it to be avoided under the Staff Corps system of promotion? How many cases of the kind are there at present?

IV.—Is the present proportion of senior to junior British officers in the Native army attended with injury to that army; and is there a sufficient number of young officers coming on?

V.—Does the present system of selecting officers for staff or civil employ work detrimentally to the efficiency of the army? What number of officers have been actually taken for the army departments and for civil and political employ in each year during the last five years?

How many have been returned from such employ to military duty?

Could the system of seconding be extended with advantage to all military staff appointments?

Should any change be made in the present rules as to the promotion in military rank of officers employed in the civil departments of the army or in civil and political appointments?

Is it desirable to make any change in the way in which the Commissariat and Army Pay Departments are filled?

VI.—Is the present complement of British officers sufficient for Native regiments in peace and war? If not, what addition should be made, and what duties be assigned to the officers? Is it desirable that the number of British officers should be the same in all regiments, or would it be convenient to have different systems? In time of war how would the wants of regiments from losses in the field be supplied?

VII.—Is any alteration in the organization of Native regiments desirable, in order to ensure a more efficient supervision by the British officers?

VIII.—Are the existing Native officers competent to command their troops and companies on all occasions, and is any improvement taking place in the men who are coming forward for advancement to the commissioned grade? If these questions are answered in the negative, what measures are desirable to bring about a sufficient degree of improvement in the Native officers, or is it considered that Native officers cannot generally be obtained possessing the qualifications necessary to command troops or companies, even with the supervision of British officers in command of squadrons and half battalions and their subalterns, besides the regimental staff?

3. The Governor-General in Council believes that Lord Napier of Magdala has already had the subject of this letter much under consideration, and will be glad to be favoured with the reply of his Excellency as soon as may be conveniently practicable, so that the Government of India may be in a position to discuss the questions relating to the Native army as a whole.

I am, &c.
(Signed) H. K. Burne, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

Confidential. Nos. 782 & 783. Government of India, Military Department.

To the Secretary to Government, Fort St. George, Bombay, Military Department.

Sir, Fort William, the 17th February 1875.

I am directed by the Right Honourable the Governor-General in Council to invite the attention of the Government of Fort St. George, Bombay, to certain subjects connected with the Native army, especially with regard to the present system for the appointment and promotion of officers, which have already occupied the attention of the Viceroy, and the consideration of which has been deferred until the assent of the Home Government had been obtained to the plan for allowing officers to commute their prospective interest in colonel's allowances. I am to request you to move the Governor in Council to make any suggestions that may occur to his Excellency or to the Commander-in-Chief as practicable for improving the system in any respect in which they may consider it to be now defective.

2. There are several points in the present system on which the Governor-General in Council would be glad to have the opinion of their Excellencies, and doubtless there will be others connected with this subject on which they will desire to remark. I am directed to indicate the following as of importance:—

I.—Does the present mode of appointing British officers to the Staff Corps work well as respects providing officers for the Native army, and is it attended with injury to British regiments?

If the system is inconvenient, what alteration in it is recommended?

II.—Is it possible under the present system to retain and advance officers in the same regiments with due regard to the claims of other officers, and should not some regulation on the subject be laid down, in order that the procedure in making promotions may be based on uniform principles, and not liable to change according to the views of each Commander-in-Chief.

If such regulations are desirable, a rough draft of them is requested.

III.—Does it often happen that senior officers are serving under the orders of juniors in Native regiments, and if this is the case, and inconvenience has arisen, how is it to be avoided under the Staff Corps system of promotion? How many cases of the kind are there at present

IV.—Is the present proportion of senior to junior British officers in the Native army attended with injury to that army; and is there a sufficient number of young officers coming on?

V.—Does the present system of selecting officers for staff or civil employ work detrimentally to the efficiency of the army? What number of officers have been actually taken for the army departments and for civil and political employ in each year during the last five years?

How many have been returned from such employ to military duty?

Could the system of seconding be extended with advantage to all military staff appointments?

Should any change be made in the present rules as to the promotion in military rank of officers employed in the civil departments of the army or in civil and political appointments?

Is it desirable to make any change in the way in which the Commissariat and Army Pay Departments are filled?

VI.—Is the present complement of British officers sufficient for Native regiments in peace and war? If not, what addition should be made, and what duties be assigned to the officers? Is it desirable that the number of British officers should be the same in all regiments, or would it be convenient to have different systems? In time of war how would the wants of regiments from losses in the field be supplied?

VII.—Is any alteration in the organization of Native regiments desirable, in order to ensure a more efficient supervision by the British officers?

VIII.—Are the existing Native officers competent to command their troops and companies on all occasions, and is any improvement taking place in the men who are coming forward for advancement to the commissioned grade? If these questions are answered in the negative, what measures are desirable to bring about a sufficient degree of improvement in the Native officers, or is it considered that Native officers cannot generally be obtained possessing the qualfications necessary to command troops or companies, even with the supervision of British officers in command of squadrons and half battalions and their subalterns, besides the regimental staff?

3. The Governor-General in Council will be glad to be favoured with a reply to this letter as soon as may be conveniently practicable, so that the Government of India may be in a position to discuss the questions relating to the Native army as a whole.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

No. 784. Government of India, Military Department.

To the Adjutant-General.

SIR, Fort William, the 17th February 1875.

THE Government of India being desirous of obtaining information in regard to the condition of the Native army on certain points, I am directed to forward the accompanying copies of two sets of blank forms of returns, and to request that the Right Honourable the Commander-in-Chief may be moved to cause them to be filled up in each corps of the Bengal army, and forwarded, if possible, so as to reach this department by the 1st April 1875.

300 of each,
Four copies of each to be furnished to each corps; 2 for regimental use and 2 for submission to Government. 24 copies are intended for purposes of collation in your office.

2. The letters noted in the margin have been duly received, but the information now asked for is necessary before the valuable and important suggestions of his Excellency can be discussed with advantage.

From Adjutant-General, No. 2837B, dated 16th November 1874.
From Quartermaster-General, No. 357C, dated 12th December 1874.

3. I am further to request that the Government of India may also be favoured with copies of the replies given in the annual confidential reports of Native regiments, as to the quality of recruits and efficiency of Native officers, for the past three years, and that the inspection reports for the present year may be forwarded at as early a date as practicable.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

Nos. 785 & 786. Government of India, Military Department.

To the Secretary to Government, Fort St. George, Bombay, Military Department.

SIR, Fort William, the 17th February 1875.

THE Government of India being desirous of obtaining information in regard to the condition of the Native army on certain points, I am directed to forward the accompanying copies of two sets of blank forms of returns, and to request that the Right Honourable his Excellency the Governor in Council may be moved to cause them to be filled up in each corps of the $\frac{\text{Madras}}{\text{Bombay}}$ army, and forwarded, if possible, so as to reach this department by the 1st April 1875.

$\frac{300}{400}$ of each,
Four copies of each to be furnished to each corps; 2 for regimental use and 2 for submission to Government. $\frac{24}{100}$ copies are intended for purposes of collation in the Adjutant-General's and Secretariat offices.

2. I am further to request that the Government of India may also be favoured with copies of the replies given in the annual confidential reports of Native regiments, as to the quality of recruits and efficiency of Native officers, for the past three years, and that the inspection reports for the present year may be forwarded at as early a date as practicable.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

No. 787. Government of India, Military Department.

To the Military Secretary to the Government of the Punjab.

SIR, Fort William, the 17th February 1875.

THE Government of India being desirous of obtaining information in regard to the condition of the Native army on certain points, I am directed to forward the accompanying copies of two sets of blank forms of returns, and to request that the Honourable the Lieutenant-Governor may be moved to cause them to be filled up in each corps under his Honor's orders, and forwarded, if possible, so as to reach this department by the 1st April 1875.

116 of each.
Four copies of each to be furnished to each corps; 2 for regimental use and 2 for submission to Government. 24 copies are intended for purposes of collation in your office.

2. I am further to request that the Government of India may also be favoured with copies of the replies given in the annual confidential reports of Native regiments, as to the quality of recruits and efficiency of Native officers, for the past three years, and that the inspection reports for the present year may be forwarded at as early a date as practicable.

I am &c.,
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

Confidential. No. 1070. Government of India, Military Department.

To the Adjutant-General.

SIR, Fort William, the 22nd February 1875.

IN continuation of my letter No. 784, dated the 17th February 1875, I am directed to request that you will move the Right Honourable the Commander-in-Chief to cause the Government of India to be furnished separately with the following information for each Native regiment for the period embraced in the returns called for:—

1. Number of soldiers in each year presented before invaliding committees and declared by them to be still fit for the service.
2. Number of men so rejected by committees who were again presented within one year and again rejected.
3. Number of men so rejected by committees who were again presented within one year and who were invalided.
4. Number of men so rejected by committees who were again presented within *two* years and again rejected.
5. Number of men so rejected by committees who were again presented within *two* years and who were invalided.
6. Number of men so presented who died within one or two years respectively.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

Confidential. Nos. 1071 & 1072. Government of India, Military Department.

To the Secretary to Government, $\frac{\text{Fort St. George,}}{\text{Bombay,}}$ Military Department.

SIR, Fort William, the 22nd February 1875.

IN continuation of my letter No. 785–786, dated the 17th February 1875, I am directed to request that you will move the Right Honourable his Excellency the Governor in Council to cause the Government of India to be furnished separately with the following information for each Native regiment for the period embraced in the returns called for:

1. Number of soldiers in each year presented before invaliding committees and declared by them to be still fit for the service.
2. Number of men so rejected by committees who were again presented within one year and again rejected.
3. Number of men so rejected by committees who were again presented within one year and who were invalided.
4. Number of men so rejected by committees who were again presented within *two* years and again rejected.
5. Number of men so rejected by committees who were again presented within *two* years and who were invalided.
6. Number of men so presented who died within one or two years respectively.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization—Native Army.

Confidential. No. 1073. Government of India, Military Department.

To the Military Secretary to the Government of the Punjab.

SIR, Fort William, the 22nd February 1875.

IN continuation of my letter No. 787, dated the 17th February 1875, I am directed to request that you will move the Honourable the Lieutenant-Governor to cause the Government of India to be furnished separately with the following information for each Native regiment for the period embraced in the returns called for :—

1. Number of soldiers in each year presented before invaliding committees and declared by them to be still fit for the service.
2. Number of men so rejected by committees who were again presented within one year and again rejected.
3. Number of men so rejected by committees who were again presented within one year and who were invalided.
4. Number of men so rejected by committees who were again presented within *two* years and again rejected.
5. Number of men so rejected by committees who were again presented within *two* years and who were invalided.
6. Number of men so presented who died within one or two years respectively.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

No. 177. Government of India, Military Department.

To the Adjutant-General.

SIR, Fort William, the 3rd March 1875.

I AM directed to request that you will be good enough to move the Right Honourable th Commander-in-Chief to cause the Government of India to be furnished, at an early date, with a return made up to the 1st January 1875, showing the average length of service of officers with their present regiments and in the appointments they now hold in the cavalry and infantry regiments of the Bengal army.

2. I am to forward for guidance a form of the return required.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization—Native Army.

Nos. 178 & 179. Government of India, Military Department.

To the Secretary to Government, $\frac{\text{Fort St. George,}}{\text{Bombay,}}$ Military Department.

SIR, Fort William, the 3rd March 1875.

I AM directed to request that you will be good enough to move the Right Honourable his Excellency the Governor in Council to cause the Government of India to be furnished, at an early date, with a return made up to the 1st January 1875, similar to that forwarded with your letter No. $\frac{2942}{3720}$, dated the $\frac{14\text{th}}{8\text{th}}$ September 1871, showing the average length of service of officers with their present regiments and in the appointments they now hold in the cavalry and infantry regiments of the $\frac{\text{Madras}}{\text{Bombay}}$ army.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization—Native Army.

No. 179A. Government of India, Military Department.

To the Military Secretary to the Government of the Punjab.

SIR, Fort William, the 3rd March 1875.

I AM directed to request that you will be good enough to move the Honourable the Lieutenant-Governor to cause the Government of India to be furnished, at an early date, with a return made up to the 1st January 1875, showing the average length of service of officers with their present regiments, and in the appointments they now hold in the cavalry and infantry regiments of the Punjab Frontier Force.

2. I am to forward for guidance a form of the return required.

I am, &c.
(Signed) H. K. BURNE, Colonel,
Secy. to the Govt. of India.

Organization.—Native Army.

Confidential. No. 1809. Military Department.

To the Secretary to the Government of India, Military Department.

SIR,

IN acknowledging the receipt of your letter No. 782 (*Organization—Native Army*), dated 17th February 1875, I am directed to forward for submission to the Right Honourable the Governor-General in Council, the annexed copy of a letter from the Adjutant-General expressive of the views of the Commander-in-Chief on the several points, connected with the Native army, in respect of which the opinion of his Excellency was desired by the Government of India, and in compliance with whose wishes, I am further to transmit the accompanying copies of minutes on the same subject recorded by the several members of the Madras Government.

No. 218, dated 3rd April 1875, with 1 enclosure.

By the Right Hon. the Governor, dated 8th April 1875.
„ Hon. W. Robinson, C.S.I., dated 9th April 1875.
„ Hon. R. S. Ellis, C.B., dated 10th April 1875.
By his Excellency the Commander-in-Chief, dated 10th April 1875.

I have, &c.
(Signed) A. C. SILVER, Colonel,
Secretary to Government.

Fort Saint George, 15th April 1875.

From Brigadier-General R. C. Stewart, Adjutant-General, to Colonel A. C. Silver, Secretary to Government, Military Department; dated Fort Saint George, 3rd April 1875, No. 218.

I AM directed by the Commander-in Chief to reply as follows to the several questions contained in the letter (as per margin) from the Government of India, to the Government of Fort Saint George, and referred to Sir Frederick Haines for report:—

Confidential. Organization—Native Army. No. 782, 17th February 1875. (Returned herewith.)

1. The British regiment, as a source of supply of young officers for the Madras army is an absolute failure. There are at present no candidates. Those who have selected an Indian career generally prefer appointments in the Staff Corps of other Presidencies, where the opportunity of civil employ is greater. Had young officers no views beyond military duty, no doubt there would be a fair proportion of candidates for this army.

I. Does the present mode of appointing British officers to the Staff Corps work well, as respects providing officers for the Native army, and is it attended with injury to British regiments?
If the system is inconvenient, what alteration in it is recommended?

As regards its effect on British regiments, his Excellency thinks that it is prejudicial. Young officers aspiring to the Staff Corps have no permanent interest in the regiment to which they are attached, as a temporary measure, and they do not identify themselves with its credit as the cornet and ensign of former days notoriously did. On the other hand, they are not looked upon with favour by commanding officers, who feel that their regiments are being made stepping stones to something else. Sir Frederick Haines has never yet heard a commanding officer say a good word for the system, but one and all condemn it from their regimental point of view.

The constant succession of young officers to be instructed for another service is regarded as a burthen on them and their staff, for the regiment reaps no advantage from their trouble. The continual change of young officers who come and go without acquiring much knowledge of, or influence over the men, who knowing them merely as youngsters at drill have no great respect for them; all such matters as these are felt by commanding officers as manifest objections to the system.

In time of war British regiments could not be called upon to give up their subalterns, and consequently under the present system the supply for the Indian armies at a critical moment would fail. These objections, if somewhat exaggerated, are still undeniable; but at the same time his Excellency finds it difficult to suggest a better training ground for these young officers than that now provided for them in British regiments. As this source of supply does not suffice to meet all our demands, it should, Sir Frederick Haines considers, be supplemented by a proportion of direct appointments, perhaps an extension of the Indian cadet class would be the better plan.

2. In the Madras Presidency it has been found impossible to retain and advance officers in the same regiment. The disbandment of four cavalry and twelve infantry regiments, as well as the reduction of strength in British officers with Native corps, has created such a large supernumerary list as to render this impossible.

II. Is it possible under the present system to retain and advance officers in the same regiments with due regard to the claims of other officers, and should not some regulation on the subject be laid down, in order that the procedure in making promotions may be based on uniform principles, and not liable to change according to the views of each Commander-in-Chief?
If such regulations are desirable, a rough draft of them is requested.

The claims of officers on the supernumerary list have always been considered, and the Secretary of State's orders, that appointments are to be regulated by substantive rank consistent with claims, service, &c., have been as closely adhered to as possible. This, however, is not a hard and fast line, exceptions do occur, but these chiefly arise when there is an opportunity of keeping in his regiment an officer who has served a long time with it. Indeed every effort, compatible with the above general principle, is made to retain officers with their old cadre regiment. Officers who may have served any length of time with corps under the new organization are also considered as having special claims.

With a large supernumerary list to deal with and with the Staff Corps system of promotion, his Excellency does not see that any plan better than the above can be adopted: and in fact,

in the face of this list and system, he would consider it most difficult to draft a code of regulations governing promotion.

3. Only two such cases have occurred in this army (by the retirement of a lieutenant-colonel, this month there is but one), and they have arisen from want of qualification in those superseded. As above stated, the utmost care has been taken to keep officers with their old regiments, but this clashing of rank has been carefully avoided, for the Commander-in-Chief is persuaded that it cannot fail to be detrimental to discipline. Situated as this army is with regard to its supernumerary list and under the Staff Corps system of promotion, an officer cannot expect to rise as he did before in his regiment, regimentally.

III. Does it often happen that senior officers are serving under the orders of juniors in Native regiments; and if this is the case, and inconvenience has arisen, how is it to be avoided under the Staff Corps system of promotion? How many cases of the kind are there at present?

4. The present great and ever increasing proportion of senior to junior British officers in the Native army is most injurious. Colonels and lieutenant-colonels hold the wings. Three or four majors have officiating wings, and, with two or three exceptions, old captains are wing subalterns.

IV. Is the present proportion of senior to junior British officers in the Native Army attended with injury to that army? and is there a sufficient number of young officers coming on?

There are no young officers coming on, no candidates to fill the number (upwards of 30) of permanent and officiating appointments now vacant. The well-being of an army depends much upon an assured source of supply of young officers. The army of Madras does not possess this, and it is a vital question how to provide it.

The age of the seconds in command and wing officers is also becoming a serious matter, and cannot fail to be detrimental to efficiency.

5. Sir Frederick Haines considers it to be detrimental to military efficiency that a young officer on joining his regiment should have an object in view outside his own profession. He very naturally seeks civil employ, in which higher emoluments and greater consideration are sure to be his; but his hopes and thoughts are thus diverted from his own peculiar work and the service suffers in consequence. At the same time, his Excellency is not inclined to press as a necessity the cutting off from officers all hope of civil employ, but he thinks that when once they have elected to serve in a civil capacity, and have passed through their probation, they should give up all thought of military status and position; that they should become civilians in fact as well as by employment.

V. Does the present system of selecting officers for staff or civil employ work detrimentally to the efficiency of the army? What number of officers have been actually taken for the army departments and for civil and political employ in each year during the last five years?

How many have been returned from such employ to military duty?

Could the system of seconding be extended with advantage to all military staff appointments?

Should any change be made in the present rules as to the promotion in military rank of officers employed in the civil departments of the army or in civil and political appointments?

It is desirable to make any change in the way in which the Commissariat and Army Pay Departments are filled?

In the course of the last five years, 51 officers have been taken for the army departments and 50 for civil employments, and in the same years 84 have returned to military duty.

Sir Frederick Haines thinks that if there is a return to the old plan of regimental promotion, which he earnestly hopes may be the case, the advantages of extending the system of seconding to all military staff appointments would be undoubted.

He would not sever the Commissariat from the army, considering as he does that a military is far superior to a civil personnel for the performance of duties on which the welfare of the army so entirely depends both in peace and war; but the Pay, Police, and other civil departments should, he thinks, have no connexion with the army.

If officers take employments in such departments, they should cease to be soldiers, and their pay, promotion, and pension should be governed by departmental rules.

6. It is insufficient whether in peace or war. The distribution of duties is also unsatisfactory, and his Excellency would propose such an increase as would insure the presence of at least one British officer with each company. The command of companies should again be vested in the British officer; the company should move at his word, and *he* should lead it. He should be an executive, not a supervising, officer.

VI. Is the present complement of British officers sufficient for Native regiments in peace and war? If not, what addition should be made, and what duties be assigned to the officers? Is it desirable that the number of British officers should be the same in all regiments, or would it be convenient to have different systems? In time of war how would the wants of regiments from losses in the field be supplied?

In Madras all regiments are constituted alike, the only difference being the northern and southern regiments; the same balance of Hindoo and Mahomedan interests is maintained in each. It is, therefore, neither expedient nor convenient that the number of British officers should vary in regiments. The constitution of regiments being uniform, the establishment of British officers should be the same in each.

The Bengal army is recruited amongst various warlike races,—Sikhs, Pathans, Rajpoots, Hindustani, &c., whose peculiarities have to be studied and provided for. With such materials it is easy to understand that class regiments, regiments with class companies, and various other forms of organization, may be rightly adopted, entailing in some cases a different establishment of British officers to what may be found necessary in others.

These things concern us not, and his Excellency trusts that no attempt may be made to alter the composition of our regiments, for, as regards classes in regiments and the system under which these are distributed in companies, and considering the materials to be dealt with, our classes are well balanced in almost every case. The few instances where this has been neglected in any way have not escaped observation.

The strength of a regiment in British officers should be such as to enable it to stand a fair proportion of losses in the field and still remain efficient. Sir Frederick Haines would, with this in view, propose the following as the regimental cadre, which leaves a margin for absentees and at the same time fulfils the above condition.

Establishment.

1 Lieutenant-Colonel, 1 Major, 4 Captains, 6 Lieutenants, 4 Sub-Lieutenants,	of whom one to be Adjutant, one Quartermaster, and one Musketry Instructor, allowing five absentees on sick and other leave.

Six company officers remain.

7. In Sir Frederick Haines' opinion the number of companies of a battalion should be reduced to six each of 100 rank and file as a peace establishment. As remarked above the command of the company should be in the hands of the British officer, and his Excellency deems this a vital point if we are to look for any real efficiency in the Native army. It is a pretence to say that the Native officer now commands his company. Minor punishments are all awarded by the wing officer, and by him the pay is issued. Moreover the Sepoys would have no confidence in the due and impartial performance of such duties by the Native officers were they entrusted with the execution of them.

VII. Is any alteration in the organization of Native regiments desirable, in order to ensure a more efficient supervision by the British officers?

8. His Excellency does not consider them to be competent to command troops and companies in the full sense of the word. They are well drilled and well instructed as regards their ordinary duties, but they have not that self-reliance and quick apprehension which the leader of a company should possess. The pension rules, which seem to be framed expressly for the purpose of retaining old men in the ranks, leave us with subadars of an average age of 54. What life or energy is to be expected from Natives of this age? Sir Frederick Haines considers that in order to get rid of such a state of things the pension rules should be revised with a view to permitting a man to retire from the service with advantage to himself at certain periods between the 15th and 40th years of service, and a maximum age fixed at which retirement should be compulsory. Improved means of education, with professional and educational test examination for promotion, will in time create as good a Native officer as can be desired. No doubt greater care is exercised in these days by commanding officers in their original selection from the ranks, and they see more clearly now than in days gone by the necessity for withholding recommendations for promotion to the commissioned grades of respectable but old and effete havildars, many of whom encumber the rolls of all our regiments, and will continue to do so as long as military efficiency is made subordinate to the dictum of a medical committee.

VIII. Are the existing Native officers competent to command their troops and companies on all occasions, and is any improvement taking place in the men who are coming forward for advancement to the commissioned grade? If these questions are answered in the negative, what measures are desirable to bring about a sufficient degree of improvement in the Native officers, or is it considered that Native officers cannot generally be obtained possessing the qualifications necessary to command troops or companies, even with the supervision of British officers in command of squadrons and half-battalions and their subalterns, besides the regimental staff?

His Excellency is convinced there are heads under which improvement in our Native officers might be expected, but under the most favourable circumstances we can never expect to find them so qualified for the command of troops and companies as to enable us to dispense with the British officer in that capacity.

9. It will be seen from the above that Sir Fred. P. Haines considers that some modification is required in the method under which young officers are supplied to the Madras army, the supply not being equal to the demand. That the present dearth of young officers is a most serious drawback to the efficiency of this army.

That their place cannot in his judgment be supplied by Native officers in the positions formerly held by British captains and subalterns. The former as a class are incapable from age as well as from the want of that high tone which compels the perfect confidence and devotion of the soldier. It has been shown that the average age of our subadars is 54; this is an age at which the fire and dash requisite in a company leader cannot be looked for.

His Excellency has shown that the classes from which the Madras army is recruited differ so essentially from those from which the Bengal army is supplied, that the organization which may be perfectly suitable to the one may be entirely unsuited to the other. He considers this a most fortunate circumstance, and that the more distinctive the army of the south remains from that of the north, the better for the empire.

RETURN of Officers taken for Army Departments and for Civil and Political Employ, and of Officers returned from such Employ to Military Duty, during the Years 1870 to 1874, inclusive.

Year.	Officers taken for		Officers returned from	
	Army Departments.	Civil Employ.	Army Departments.	Civil Employ.
1870 - -	7	13	7	7
1871 - -	16	10	18	14
1872 - -	12	14	7	6
1873 - -	11	6	4	11
1874 - -	5	7	5	5
Total -	51	50	41	43

(Signed) R. C. STEWART, Brigadier-General,
Fort Saint George, 3rd April 1875. Adjutant-General.

MINUTE by the Right Hon. the PRESIDENT.

Letter of Government of India respecting Promotion in the Native Army.

So far as I am able to form an opinion upon them, I concur generally in the replies given by his Excellency the Commander-in-Chief to the questions of the Government of India, and in the views which he has expressed.

2. Nothing can be less satisfactory, as regards the most important question that can affect an army, the system under which it is officered, than the present condition of the army of this Presidency. We cannot even obtain the number of junior officers required to complete the number of European officers now allotted to each regiment; and even when complete that number is so small that our army can now scarcely be considered as an effective instrument whether of offence or defence. It is no doubt possible to improve the quality of the Native officer; but supposing that by persevering efforts this could be effected so as to impart to Native officers an amount of military knowledge and capacity equal to that of European officers, and a control over their regiments proportionate to their numerical superiority, past events imperatively require us to bear in mind that we might all the while have been labouring for a result inconsistent with our own security. And whether the quality of the Native officer is or is not to be improved, to leave things in other respects as they are at present would be to abandon the traditionary policy by which we have gained our supremacy and ensured our safety in this country, that of employing Native soldiers under the lead of European officers whom they have learnt to regard with trust, respect, and affection. For not only is the number of European officers much too restricted; the present system does not allow of their remaining long enough with the regiment to obtain a hold upon the confidence and attachment of their men. His Excellency the Commander-in-Chief has indeed shown that every endeavour is made to keep the officers to their regiments; but the regulations of the Staff Corps are evidently such that those efforts are of no very serious or comprehensive avail.

3. If the Madras army is ever to be in a satisfactory condition, what seems to be required is:—

1. That there should be a sufficient number of European officers with each Native regiment.

His Excellency the Commander-in-Chief has indicated the rank and the number (16) of European officers whom he considers to be required; and this proposal may (I think) be accepted as sufficient for the needs both of peace and war.

2. That these officers should, so far as may be possible, be permanently attached to their regiments: in other words, that to this extent the old "regimental system" should be restored.

The young officer should enter the regiment, as formerly, in the rank of ensign; and there should be no inducement of tempting civil employment, either here or in other Presidencies, to disincline him to the appointment, unsettle his views, and impair his military experience and habits, when he has obtained it. Until the present Staff Corps system has been broken up by judicious arrangements and by lapse of time, this change cannot be completely made; but it appears to me that we shall never have real cause to be satisfied with our Indian army until there is a distinct and impassable barrier between military and civil employ. It was this evil, risen to an intolerable height, of civil employ, that the Staff Corps itself was created to remedy; and the Staff Corps, as originally instituted, would have cured the evil. But the subsequent admission (which was, as ought to have been foreseen, inevitable) of all Indian officers, whether in military or civil employment, to the Staff Corps not only neutralised that intention, but made of the Staff Corps a crushing burden upon Indian finance and a serious impediment to military efficiency.

4. It is to be hoped that arrangements may be found possible which, at a cost worth incurring when regard is had to the vital importance of the object in view, will ultimately provide for these requirements. A very large addition to the cost of the Madras army would be necessary to make it more really expensive than it is now, when a heavy annual expenditure is incurred upon a weapon which would probably fail us in the hour of need.

8th April 1875. HOBART.

MINUTE by the HON. W. ROBINSON, C.S.I.

I ENTIRELY concur in the view expressed by his Excellency the Commander-in-Chief on the subject raised in the first question. But I think further, that even suppose young officers can be obtained in sufficient numbers through the present channel, the early training of young men with European soldiery is not calculated to awaken that respect for, and sympathy with, the Native soldiery, or confidence in them, which was an important element of strength under our former organization; in nine cases out of ten these necessary conditions are reversed.

2. Further, I am under the impression that the expense and comparative temptations of the British army deter Indian parents from seeking employment for their sons in it, who would willingly see them accept direct cadetships; and I think that encouragement should be held out to Indian parents to return their sons to a country which they have almost learnt to look on as home.

3. Nothing can be added to the force of fact and argument of his Excellency's replies to the II., III., and IV. questions.

4. As regards No. V., I believe that an important political end is subserved by allowing free passage through the lower ranks of the military service into civil employment in this country. Indeed there are certain branches of the administrative service, such as police, of the country which I would absolutely reserve for young men who have served for a certain period in the army.

5. It is not only the army that is suffering from the want of young men of a suitable stamp. Almost every civil department is in the same predicament, and is seeking recruits amongst the "casuals" of the country with very indifferent results, simply because young men with some military training, who would always be preferred, are no longer available. I have had very large experience of this matter, and believe that no assurance for honesty and efficiency comes near the possession of Her Majesty's commission. No training is so useful for civil life in this country as a course of discipline, &c. in early life, which connexion with the army secures; and I think political and administrative efficiency would be greatly advantaged if the majority of their recruits continued to be drawn from the subaltern ranks of the army as was formerly the case.

6. I entirely agree with the views of his Excellency on the subject to which attention is drawn by the VI., VII., and VIII. questions.

7. I have frequently been out on quasi "service" of a purely home character against Moplahs, Khonds, &c., and in face of jail disturbance, local émeutes, and the like, and I am absolutely without hope of our Sepoys, if not adequately officered by English officers. Indeed, on one occasion when I had two companies of a Native regiment out (under Native officers) in support of police, who were at work with rebellion amongst the Khonds, the senior Subadar, by no means an aged or unsoldierly man, came quietly to my tent and begged me in confidence not to direct an advance into the hills until the detachment was joined by quite a young officer who was to take command. He did not feel confident that the men would do for him what they would do for the fine young lieutenant they were expecting.

8. Nothing short of the complement which his Excellency has named would suffice, and I would add one or two to the ranks of lieutenants and sub-lieutenants to admit of detachment for civil employment without weakening the cadre.

9. I think that officers should have the same facilities of study, &c. afforded in this country as are now afforded at home; and that Military Schools might be established through which Natives of social standing might pass at an early age into the higher grades of Native officers without passing through the ranks.

10. I think that the establishment of a family pension fund, to be subscribed to by every Sepoy and Native officer in the service, for the benefit of widows and orphans would greatly add to the popularity, respectability, and *esprit de corps* of the service, and would deserve the liberal support of Government.

9th April 1875. W. Robinson.

Minute by the Hon. R. S. Ellis, C.B.

I concur entirely, in so far as I am competent to give an opinion, in the answers given by his Excellency the Commander-in-Chief to the questions addressed to him by the Governor-General in Council, and in the recommendations made by his Excellency, for securing the efficiency of the Madras army.

2. As regards question V., I consider that his Excellency the Commander-in-Chief has shown conclusively that the present system of selecting officers for staff and civil employment works detrimentally to the efficiency of the army. I fully recognise the great advantage which has resulted from the employment of military officers in the administration of recently annexed provinces, and it may still be necessary, in some parts of India, to continue to have recourse to the army for a supply of officials; but the case is very different in the Madras Presidency, and I do not anticipate any serious inconvenience if we are no longer permitted to select officers of the army for civil employment.

3. The departments in which military officers are employed, namely, the Public Works, Police, Revenue Survey, and Jails, will not materially suffer by their withdrawal from those purely civil duties. The College at Cooper's Hill will soon supply the Department of Public Works with well-qualified civil engineers, and there can be no difficulty in filling up the few vacancies that will be created in the departments of Jails and Revenue Survey.

4. As regards the police, the introduction of a new system of police administration was greatly facilitated by the Government being able to select for the higher grades of the police force the best officers of the Madras army; but undoubtedly the qualities which made these officers so valuable to the police made their withdrawal from military service a serious injury to the efficiency of the regiments in which they had received their military training. Now that the police has been completely organised, and has been in successful working for many years, it is unreasonable to look to the army as a source of supply of police officers. There will, I apprehend, be no real difficulty in constituting a regular police service, recruited, as regards its officers, by direct appointments from England, such officers undergoing probation in this country and being specially trained for police work.

5. In any case I quite agree with his Excellency the Commander-in-Chief, that when a military officer has elected to serve in a civil capacity, and has undergone his probation, he should give up all thought of military *status* and position, and become civilian in fact as well as employment. I believe that both the army and the civil administration will benefit by this determination.

6. On the question of the improvement of the Native officers, I venture to submit that in this presidency we are situated somewhat differently from other parts of India. We have no specially warlike races, nor have we great families in which military service has become hereditary. The

Native officer of the Madras army is at present much the same in origin and often in education, as the Sepoys he commands. If it is desirable to improve his character and position, it may be worthy of consideration whether it would not be practicable to establish a military college in which a limited number of the sons of our wealthy men and our large landed proprietors could receive such training as would qualify them for commissions as Native officers, so that the Native officers of the Madras army would consist, in such proportions as may be determined by competent authority, of young men who, after special training, had received direct commissions, and of Native soldiers who by length of service or special merit had been promoted from the ranks to the commissioned grades. I believe that under these conditions military employment would be popular among the upper classes of Native society, and that there would be no danger in affording to a limited number a higher military education than can be obtained by mere regimental service and instruction.

10th April 1875. R. S. ELLIS.

Confidential.—From Colonel J. Macdonald, Secretary to Government, Bombay, Military Department, to Colonel H. K. Burne, C.B., Secretary to the Government of India, Military Department, Simla.—(No. 2645, dated Bombay Castle, the 29th June 1875.)

I HAVE the honour to acknowledge the receipt of your confidential letter No. 783, dated 17th February 1875, (Organization—Native Army), regarding the present system of appointment and promotion of officers of the Native army, and am directed to forward, for the information of the Government of India, the accompanying copy of a letter from the Adjutant-General, No. 109M, dated 26th April, and of its accompaniments, on the subject.

2. I am desired to state that his Excellency the Governor in Council fully appreciates the difficulty of replying satisfactorily to the questions proposed in your letter, extending, as they do not only to the efficiency of the Native army and the organization of the Staff Corps—subjects for the just treatment of which much professional knowledge is required—but also to the system by which at present the Government draws from the Staff Corps a very large proportion of the officers employed in the Commissariat, Control, Police, Political, and Revenue Survey Departments—a system which, it can scarcely be denied, must operate, more or less, to the prejudice of the army for actual military service. And as it is to the "Native army, especially with regard "to the present system for the appointment and promotion of officers," that the attention of this Government is now especially invited, and as the Commander-in-Chief has given the answers dictated by his military experience to the question specifically put, his Excellency in Council would confine any observations he may now submit mainly to that army and to the purely military staff which is its indispensable adjunct.

3. The universal complaint is that the number of European officers attached to the Native regiments is insufficient for service in the field—that this deficiency which must be increased by casualties, cannot be satisfactorily supplied by a sudden addition of officers unknown to their men,—that, under the present system of promotion, the European officers are not sufficiently acquainted with their men, and do not take a warm interest in the character and reputation of the regiment—and that the young officers who are now transferred from European regiments to the Staff Corps have no desire to serve as regimental officers, but look eagerly for advancement in other capacities.

4. It is sometimes argued that the irregular regiments which have at different times been raised and have acquired the highest distinction have been led by a small or perhaps a smaller body of European officers than that now attached to a regiment of Native infantry. But the two cases will scarcely admit of comparison. In the case of the irregular regiments the officers have been men possessed of extraordinary power for service of such a nature—men who were able to equal or to excel any of those under them in feats of arms, and by their very nature suited to command. With such men at the head it was both prudent and desirable to select the Native officers for their possession of similar qualities; and thus it became certain that the machine might be trusted to do its work well, even under very trying circumstances. But it seems too much to expect similar results from the application of similar principles to the whole mass of officers, European and Native, of the ordinary average capacity of an army; and it may well be doubted if, with European officers not above the average, it would be prudent to seek for Native officers possessing special military talents.

5. It may be assumed then that it will be the policy of the British Government to place its reliance, when Native regiments are brought into actual conflict with an enemy, mainly on the efforts and examples of the European officers, and to trust to the Native officers to be selected with due care for the daily control and discipline of the men in the performance of their ordinary duties.

6. His Excellency in Council would, therefore, recommend—

1st. That the proper complement of officers should be fixed.

2nd. That they should enter the army on the understanding that their service would be regimental service, with the exception of employment on the military staff; that their promotion, with occasional exceptions in case of necessity, would be regimental; that when employed on the military staff they would be seconded; and that if they accepted civil employ, their military career would be closed.

3rd. That the pay and scheme for promotion should be such as would induce candidates of a proper standard to offer themselves for admission.

7. Some portion of the cost of this reform might perhaps be provided by a very moderate reduction of the existing complement of Native officers. Still the additional charge will no doubt be considerable. But his Excellency in Council cannot admit the fact as an insuperable objection to the measure. It is a common saying now that we hold India by the sword, that is, that if we cease to maintain our military ascendency, our rule will speedily come to an end. There seems to be much truth in this, and thus the maintenance in the highest state of efficiency of everything connected with the army becomes most binding on the British Government. The omission to remedy admitted important defects in the constitution of the Native army must speedily bring about its own punishment. This Government, moreover, are not aware of the existence of any facts tending to prove that we are unable to meet the costs of the necessary reform.

8. His Excellency in Council is aware that these proposals contain no provision for supplying the officers who have hitherto been taken from the army for civil duties. The omission is intentional. This Government believe that positive conclusions are more likely to be arrived at on both subjects by separating altogether the consideration of military reform from that of the question of supplying officers for civil employment. If it be once understood that the officers of the army are for the army, means will of necessity be devised for meeting the wants of the civil departments. Elsewhere the services of military officers have not been found indispensable.

9. His Excellency in Council would be sorry to be regarded as undervaluing either the services rendered by the distinguished officers of the past or the merits of many of those now in civil employ, but circumstances appear to have necessitated a change in the direction which this Government have thought it their duty to advocate.

10. Copies of the minutes on the subject by the Hon. A. Rogers and the Hon. J. Gibbs, members of Council, are herewith forwarded at their request.

From Brigadier-General C. T. Aitchison, Adjutant-General of the Army, to the Secretary to Government, Bombay, Military Department.—(No. 109M, dated Mahableshwur, the 26th April 1875.)

I AM directed to acknowledge Government resolution No. 754 of the 26th February, with which was forwarded confidential letter No. 783 of the 17th February 1875, from the Government of India, asking for the opinion of his Excellency the Commander-in-Chief on several points in the present system of appointment and promotion of officers, both British and Native, of the Native army, and inviting any suggestions that may occur to the Commander-in-Chief for improving the system where it may be considered defective.

2. I am desired to say that Sir Charles Staveley, considering it the simplest course, has replied seriatim to the several questions put in Secretary Colonel Burne's letter, as they appear to his Excellency to embrace most, if not all, the points in the present system that require alteration or modification.

3. The replies have been printed, and three copies are annexed.

Up to within the last few months the system of providing officers for the Native army from British regiments has worked well, a very superior body of young officers have joined the Staff Corps, and with but one or two exceptions all have taken to their new duties with credit to themselves. I am told, however, that they do not settle down to their new regiments, and have a hankering for ex-regimental employ.

I. Does the present mode of appointing British officers to the Staff Corps work well as respects providing officers for the Native army, and is it attended with injury to British regiments?

It is believed that the system is attended with injury to British regiments, for it is very generally admitted that a regiment loses many of its best young officers, and no doubt indirectly the system is injurious to the regiment.

In ten years as many as 21 officers have gone from one regiment, the 108th, to the Staff Corps, and the commanding officer informed me that many went unwillingly to the Indian Army and under pressure from their parents.

There are two systems that suggest themselves:—

1st. That cadets should be appointed direct to the Indian service, and should be attached to the cavalry or infantry branches until they shall have learnt their regimental drill and passed the sub-lieutenant's course of eight months, when they should at once be gazetted as lieutenants to regiments.

a. If the system is inconvenient, what alteration in it is recommended?

2nd. That a Military College for the Indian service should be re-opened, or Sandhurst enlarged, the latter preferred, as it would doubtless lead to a more thorough amalgamation of the two armies. The entrance to be by competition as now at Woolwich, the course to be of similar duration, viz., two years. Rules to be established how those who pass out with credit should have the choice of British or Indian service, and to which branch, cavalry or infantry.

At the same time exchanges as now, *i.e.*, under the rank of major, should be allowed into the Staff Corps from British regiments, for many men on coming to India feel desirous of continuing their services out here on the staff, and impediments should not be thrown in the way of their seeking an Indian career.

II. It is possible under the present system to retain and advance officers in the same regiments with due regard to the claims of other officers, and should not some regulation on the subject be laid down, in order that the procedure in making promotions may be based on uniform principles, and not liable to change according to the views of each Commander-in-Chief?

It is not possible under the present system without great injury to the claims of other officers who may be temporarily without a permanent regimental position; it would fall with great hardship on those officers, for instance, whose service on the staff has expired. As a rule, these are the best officers, having been selected for ex-regimental employ, and any system which would prevent their returning to regimental duty would be injurious to the service and to themselves.

It would be difficult to lay down any hard and fast rule to meet such cases. Commanders-in-Chief should be allowed, as now, to use their own discretion.

In this army seniority combined with fitness for advancement has, for the last three or four years, been the principle in making permanent appointments to regiments. It is a system that adapts itself more readily to a service that hitherto has been a strictly seniority service, and, as the returns attached certify, the general idea that officers are too often changed about from regiment to regiment is fallacious. The facts are as shown in the annexed statement and marked C.

The system, however, of bringing in officers from the unemployed list, or from other regiments, *to officiate* is very objectionable. They are said to take little interest in their work; and considering that their appointment is only temporary, and they know nothing of the regiment or the regiment of them, it is not surprising, but under the present circumstances of the service this cannot be avoided.

a. If such regulations are desirable, a rough draft of them is requested.

III. Does it often happen that senior officers are serving under the orders of juniors in Native regiments; and if this is the case, and inconvenience has arisen, how is it to be avoided under the Staff Corps system of promotion?

a. How many cases of the kind are there at present?

See above.

Only one such instance (in the 29th N.I.) has occurred in this army, and as the commanding officer has reported the difficulties of his position, it has been under consideration to transfer the second in command, who is senior to the commandant.

IV. Is the present proportion of senior to junior British officers in the Native army attended with injury to that army? And is there a sufficient number of young officers coming on?

There are at this date in the Bombay army:—

Brevet colonels	81
Lieutenant-colonels	108
Majors	100
Captains	188
Subalterns	78

Out of these there are doing regimental duty:—

Colonels	30
Lieutenant-colonels	40
Majors	29
Captains	71
Subalterns	63

See above; but the seniority system advocated would prevent its recurrence.

Most certainly, the present proportion is injurious to the army. The officers as a body are too old. Further, field officers and sometimes even colonels now have to perform the duties usually pertaining to the rank of captain, such as musketry instruction and payment of their men, which tends to lower the dignity of their position, is hurtful to their own self-respect, and these duties not being those fitting their rank, they are wanting in zeal.

In May 1874, instructions were received to complete Native regiments to seven officers present in India; this exhausted the list of applicants for the Staff Corps and left 30 vacancies still to fill up, viz.:—

13 squadron subalterns.
17 wing subalterns.

Since that date 11 officers have joined the Staff Corps, which is near about the usual number of vacancies that occur annually.

V. Does the present system of selecting officers for staff or civil employ work detrimentally to the efficiency of the army?

The present system of selecting officers for the military staff does not work detrimentally; on the contrary, staff officers return to their regiments far more efficient and with enlarged views; and although the civil departments draw away many of the best of our young officers, this need not be objected to, *provided a reserve of young men* were at hand ready to take their places.

a. What number of officers have been actually taken for the Army Departments and for civil and political employ in each year during the last five years?

Field Officers	6
Captains and Subalterns	42
	48

1870	5
1871	12
1872	7
1873	13
1874	11
	48

b. How many have been returned from such employ to military duty?

Field Officers	-	-	-	-	-	24
Captains and Subalterns			-	-	-	17
						41

1870	-	-	-	-	8
1871	-	-	-	-	7
1872	-	-	-	-	8
1873	-	-	-	-	9
1874	-	-	-	-	9
					41

The above shows that while the greater part of the officers taken for departmental and civil employ were young officers, the majority of those returned to military duty were old field officers.

c. Could the system of seconding be extended with advantage to all military staff appointments?

Most certainly.

It is thought that an officer on obtaining purely civil employ should be transferred to the civil list. An exception might, with advantage to the State, be made as regards officers in political employ and the police, provided in the latter case officers be returned to duty with the army before attaining the rank of lieutenant-colonel. Officers joining the civil departments of the army should leave the army and rise in grades departmentally.

d. Should any change be made in the present rules as to the promotion in military rank of officers employed in the civil departments of the army, or in civil and political appointments?

These are two of the civil departments of the army and included above.

e. Is it desirable to make any change in the way in which the Commissariat and Army Pay Departments are filled?

Sufficient for garrison duties in time of peace, but certainly not sufficient for the field.

VI. Is the present complement of British officers sufficient for Native regiments in peace and war?

I would refer to two schemes of organization of the Native army, herewith attached, one by the Adjutant-General of the Army, and which has before been submitted to Government, marked A.; the other, marked B., is my own. I consider General Aitchison's an admirable one were we raising new regiments, but I cannot help thinking that much discontent would arise if one-third of the distinguished regiments of the Bombay army were suddenly transformed into depôt battalions and another third into garrison battalions, and, therefore, never again as battalions to take the field.

a. If not, what addition should be made, and what duties be assigned to the officers?

b. Is it desirable that the number of British officers should be the same in all regiments, or would it be convenient to have different systems?

This is included in schemes above alluded to.

c. In time of war how would the wants of regiments from losses in the field be supplied?

This is shown in the two schemes.

VII. Is any alteration in the organization of Native regiment desirable, in order to ensure a more efficient supervision by the British officers?

This is also included in the schemes above referred to. Both schemes admit of the double company organization, which for the present tactical formation is by far the best.

Adjutant-General's letter to Government, No. 1,578, 9th November 1872, goes fully into these points, copy attached and marked D, and I concur in the opinion of Sir Augustus Spencer therein given. The Native officers of the Bombay army are competent to command their troops and companies at ordinary field days in time of peace, but on active service before an enemy I certainly should not feel that confidence in them that I should in British officers.

VIII. Are the existing Native officers competent to command their troops and companies on all occasions, and is any improvement taking place in the men who are coming forward for advancement to the commissioned grade? If these questions are answered in the negative, what measures are desirable to bring about a sufficient degree of improvement in the Native officers, or is it considered that Native officers cannot generally be obtained possessing the qualifications necessary to command troops or companies, even with the supervision of British officers in command of squadrons and half battalions and their [subalterns, besides the regimental staff?

I consider in these days, when so much *should* depend upon the captains of companies, that, do what Government will, the present uneducated class of Native officers, rising as they do from the ranks, cannot be so improved as to be an efficient substitute for the British officer.

I have heard a German General of great distinction say that he attributed the German successes in a great measure to their captains being so good.

C. W. D. Staveley, Lieutenant-General,
Commanding Bombay Army.

A.

I.—Notes on the Organization of the Native Army.

The object of the subjoined scheme is to meet the objections to the present organization, which may be said to be almost universally condemned.

The objections to the present system, and the suggestions towards its improvement may be classed as follows :—

I. The paucity of British officers to lead in the field, and the uselessness of expecting the Native officer to take the place of the European officer at the head of his company.

The proposed service battalion gives 15 British officers for the field.

II. The constant change of officers from one regiment to another, tending to weaken *esprit de corps* on the part of the officers and confidence on the part of the men.

The only changes will now be from one battalion to another of the same regiment.

The reserve battalion will be localised, at which all recruits will be enlisted from the district allotted to the regiment, with the exception of 150 foreigners per battalion, as allowed at present.

III. The absence of a proper *clannish*, as distinct from *Caste*, sympathy among the men, which can only be obtained, some think, by regiments being localised, by their recruitment being confined to certain districts.

IV. To meet the views of those, on the other hand, who would prefer to see an army more *mobile*, and who object to an army composed of regiments entirely localised.

The service and garrison battalions will be *mobile*, specially the former.

One cadre for the three battalions accomplishes this. Purchase was an object to be attained when this paper was first drawn up, but the abolition of all purchase disposes of this point, for the present at least.

V. The re-institution of the regimental cadre by which, amongst other advantages, purchase, as it obtained in the old Indian army, may be re-introduced.

VI. The keeping of the present overgrown and expensive Staff Corps to its legitimate bounds, viz., to provide a corps for *staff situations* only, both civil and military, exclusive of five-year tenure appointments which tend to improve regimental officers, who, when so employed, should be *seconded*.

This is effected by all regimental officers rising by succession in the cadre of their regiment.

The writer admits that the plan he now proposes to detail is not entirely his own, having taken hints and ideas from papers that have already appeared both on the Home and Indian army reorganization schemes.

II.—Proposed Scheme.

Infantry Branch.

At present the Bombay Native army consists of 30 infantry regiments of the line, all under the orders of the Commander-in-Chief.

There are no local or irregular regiments, properly so-called; the few there were are now organized as military police.

Out of these 30 regiments, therefore, the reorganized infantry army must be formed.

I. It is proposed to form 10 regiments of three battalions each.

The battalions to be designated as follows:

1st. Service battalion.
2nd. Garrison battalion.
3rd. Reserve battalion.*

II. The officers of the three battalions to be formed in one cadre, to consist of 27 officers.

III. The cadre to stand as follows:—

3 Lieutenant-colonels.
3 Majors.
7 Captains.
14 Subalterns.

27

IV. The battalions to be composed as follows:—

Details	1st or Service Battalion.	2nd or Garrison Battalion.	3rd or Reserve Battalion.	Total of Regiment.	Remarks.
European Officers:					
Lieutenant-Colonels — (Commandants)	1	1	1	3	
Majors	2	1	—	3	
Captains	4	2	1	7	
Lieutenants	4	—	—	4	
Sub-Lieutenants	2	2	—	4	
Adjutant (Subaltern)	1	1	1	3	
Quartermaster and Paymaster (Subaltern)	1	1	1	3	
Total	15	8	4	27	
Native Officers:					
Subedars	8	6	5	19	
Jemedars	8	6	5	19	
Total	16	12	10	38	
Non-Commissioned Rank and File:					
Havildars	32	24	20	76	
Naiks	40	30	25	95	
Drummers	16	12	10	38	
Privates	800	600	500	1,900	
Total	888	666	555	2,109	
Number of Companies	8	6	5	19	

* Perhaps more happily styled "Nursery" Battalion, in an able paper in the "Saturday Review" on Army reorganization at home.

Of the present Native infantry army of 30 regiments, it is calculated that one third only, *i.e.*, 10 battalions, could be spared for field operations beyond the limits of the presidency.

The 10 service battalions should always be kept complete in officers for this emergency, in peace time taking their share in reliefs, but to be kept as much as possible at head-quarters of divisions and districts so as to be practised in brigade and field duties.

The "garrison battalion," as the term implies, should be held more particularly for periodical reliefs.

The "reserve battalion," which should be permanently located in one of the 10 districts or centres herein-after named, should be the nursery for the entire regiment, the lines permanent, able to accommodate families of two battalions; all recruits to be enlisted there and passed into the ranks.

In case of the service battalion taking the field, the families of the battalion to be moved to the reserve battalion.

The districts proposed in which the reserve battalions shall be permanently located, are as follows:—

1 Sind.	2 Konkan.
1 Guzerát.	1 Khandesh.
2 Deccan.	1 Mhow.

2 Southern Mahratta Country;

subject to modification as regards capability for enlistment.

As now, 150 "Foreigners" to be allowed for each battalion, *exclusive* of men so called who may have been born and brought up in the Regiment.

III.—Financial Results.

The financial results of the proposed organization will be as follows:—

Present Regimental Establishment.			Proposed Establishment of 1 Regiment of 3 Battalions.		
European Officers.	Rs.	Rs.	*European Officers.*	Rs.	Rs.
1 Lt.-Col.—Commandant -	1,427		3 Lt.-Colonels, Comdts., at Rs. 1,432 (*a*) - -	4,296	
1 Lt.-Col.—2nd in Command -	1,097		2 Majors, 2nd in Comd., at Rs. 939 (*b*) - -	1,878	
1 Major—Wing Officer -	870		1 Major, Service Battalion -	789	
1 Lieut.—Adjutant - -	425		1 Cap., 2nd in Comd. Reserve Battalion (*c*) -	565	
1 Lieut.—Quartermaster -	375		6 Capts., at Rs. 540 (*d*) -	3,240	
1 Lieut.—1st Wing Subn. -	325		10 Lieutenants, viz.:—		
1 Lieut.—2nd Wing Subn. -	325		4 at Rs. 356 (*e*) -	1,424	
		4,844	3 (Adjts.) at Rs. 456 (*f*) -	1,368	
			3 (Qrmstrs.) at Rs. 406 (*g*)	1,218	
			4 Sub-Lieuts., at Rs. 302 (*h*) -	1,208	
					15,986
Native Comd. and Non-Comd. Rank and File.			*Native Comd. and Non-Comd. Rank and File.*		
8 Subedars - - -	628		19 Subedars - -	1,496	
8 Jemedars - - -	260		19 Jemedars - -	615	
40 Havildars, at Rs. 14 -	560		76 Havildars, at Rs. 14 -	1,264	
40 Naiks, at Rs. 12 - -	480		95 Naiks, at Rs. 12 -	1,140	
16 Drummers, at Rs. 7 -	112		38 Drummers, at Rs. 7 -	266	
600 Privates, at Rs. 7 - -	4,200		1,900 Privates, at Rs. 7 -	13,300	
Non-effective Staff Pay of Subedar-Major, Native Adjutant, &c. - - -	132		Non-effective Staff Pay of Subedar-Major, Native Adjutant, &c. - -	324	
		6,372			18,405
Mess Allowance - -	100		Mess allowance for 2 Battalions - - -	200	
Band Allowance - -	100		Band Allowance for 2 do. -	200	
		200			400
Total for each Regiment per mensem -		11,416	Total for each Regiment per mensem -		34,791
		30			10
Total for 30 Regiments per mensem -		3,42,480	Total for 10 Regiments per mensem -		3,47,910

(*a*) Pay of rank - - -	1,032		(*e*) Pay of rank - - -	256	
Command allowance -	400		Staff Pay - - -	100	
		1,432			356
(*b*) Pay of rank - -	789		(*f*) Pay of rank - - -	256	
Staff Pay - - -	150		Staff Pay - - -	200	
		939			456
(*c*) Pay of rank - -	415		(*g*) Pay of rank - - -	256	
Staff Pay - - -	150		Staff Pay - - -	150	
		565			406
(*d*) Pay of rank - -	415		(*h*) Pay of rank - - -	202	
Staff Pay - - -	125		Staff Pay - - -	100	
		540			

There is thus *apparently* a monthly increase of Rs. 5,430 for the whole army; but it must be borne in mind that the actual expense of the Native army is far in excess of that set out under "Present Regimental Establishment," for as a rule, adjutants, quartermasters, and 1st wing subalterns hold the rank of captain. The *Army List*, dated 1st January 1873, shows at least 70 captains holding such appointments. The difference of pay, viz., Rs. 374−225=149×70=Rs. 10,430, must therefore be added to the amount shown as the total cost of "Present Establishment." The cost of the proposed establishment will then be less by Rs. 5,000 per mensem than the present actual expenditure.

IV.—Numerical Comparison.

The subjoined statement shows the number of European officers, including those absent on furlough, at present employed, or available for employment, with the Native infantry, and the number required under the proposed organization:—

Rank.	Present Number.	Proposed Number.	Surplus.	Deficient.	Remarks.
Colonels and Lt.-Colonels	80	30	50	—	
Majors	56	30	26	—	
Captains	99	70	29	—	
Subalterns	51	140	—	89	
Total	286	270	105	89	
			Or an aggregate surplus of 16 Officers.		

Thus it will be seen that, *numerically*, the present supply of available officers for regimental duty is but sufficient for the wants of the proposed organization.

The only difficulty will be found in the fact that field officers are in superabundance, while there is a great paucity of subalterns. But this difficulty will in course of time settle itself, the more or less quickly as Government assists, by bonus or otherwise, in getting rid of the senior field officers.

B.

Suggestions for the Reorganization of the Native Army.

A regimental three-battalion system to be adopted.

1. That each regiment shall consist of three battalions, and, as in some corps of the British service, that the officers of the three battalions be on one list for promotion and transferable from one battalion to another.

Recruiting to be regimental.

2. That all recruiting be for the regiment, and the Sepoys transferable from one battalion to another, so that when a battalion is on service its strengh might be at once increased and subsequent casualties filled up from the other battalions.

Battalion Establishment.

3. The establishment of each battalion to consist of—

1 Lieut.-Colonel.
1 Major.
4 Captains.
4 Subalterns.
1 Adjutant.
1 Quartermaster.
1 Medical officer.
1 Subedar Major.
4 Subedars.
9 Jemedars, including Native Adjutant.
33 Havildars, including Drill Havildar.
41 Naiques, including Drill Naique.
1 Drum Major.
16 Drummers.
600 Sepoys (in war time 800).

Double Company Establishment.

4. Each battalion to consist of eight companies, which for administrative and tactical purposes will be formed into four double companies.

The establishment of the double company to be as follows:—

1 Captain.
1 Subaltern.
2 Subedars.
2 Jemedars.
8 Havildars.
10 Naiques.
4 Drummers.
150 Sepoys in peace.
200 Sepoys in war time.

5. On parade the captain to be mounted (except under fire), the subaltern to command one company, and the senior subedar the other.

Company formation.

6. It is proposed to improve the status of the captain, giving him additional powers and making him responsible for the payment and interior economy, as well as the drill and musketry instruction of his double company.

7. Besides other recommendations which might be advanced having reference to the manner of fighting of the present day, the double company system has, it is considered, this tactical advantage, that when a company is skirmishing, and is reinforced by the other company of the same double company, there will be no confusion, although the companies are mixed up, and for the reason that men and officers know one another.

8. The double company system, if carried out as intended, will give more responsibility and independence to the captain than he has under the present system in British regiments. He will, therefore, have more interest in his work and have more opportunity for qualifying for higher command.

The subaltern, too, being in actual command of a company on parade, will necessarily be a better preparation for him for higher command, than riding behind his wing, as at present, doing nothing. On service he will be at hand if required to take his captain's place.

C.

SERVICE of COMMANDANTS of BOMBAY CAVALRY on 1st October 1874 with their present REGIMENTS and as COMMANDANTS.

	With Regiment.		In Command.	
	Years.	Months.	Years.	Months.
1st Cavalry - - -	12	2	12	2
2nd „ - - -	8*	3	8	3
3rd „ - - -	12†	9	12	9
Poona Horse - - -	14‡	8	14	8
1st Sind Horse - - -	2	4	2	4
2nd „ - - -	8	6	3	7
3rd „ - - -	2	5	2	5
Total -	61	1	56	2

Average of 7 Commandants, 8 years 7 months with present regiments, and 8 years as Commandants.

* Colonel MacGregor had previously served with the regiment for about 21 years.
† Colonel Graves had previously served with the regiment for about 24 years.
‡ Colonel Westropp had previously served with the Poonah Horse for about 8 years.

SERVICE of SECONDS in COMMAND of BOMBAY CAVALRY REGIMENTS with their present REGIMENTS and as SECOND IN COMMAND.

	With Regiment.		As Second in Command.	
	Years.	Months.	Years.	Months.
1st Cavalry - - -	25	10	9	4
2nd „ - - -	27	10	10	9
3rd „ - - -	1*	2	1	2
Poona Horse - - -	19	10	16	9
1st Sind Horse - - -	5	7	5	7
2nd „ - - -	9	3	3	7
3rd „ - - -	9	—	3	—
Total -	98	6	50	2

Average of 7 Seconds in Command, 14 years 1 month with present regiments, and 7 years 2 months as Seconds in Command.

* This Officer had previously served some time with this Corps.

SERVICE of COMMANDANTS of BOMBAY INFANTRY on 1st October 1874 with their CORPS and as COMMANDANTS.

—	With Regiment.		In Command.		—	With Regiment.		In Command.	
	Ye ars.	Months.	Years.	Months.		Years.	Months.	Years.	Months.
1st Infantry -	12*	9	12	9	17th Infantry -	34	1	12	8
2nd „ -	1*	4	1	4	18th „ -	11*	4	9	10
3rd „ -	4	0	4	0	19th „ -	4	6	3	4
4th „ -	7*	6	1	2	20th „ -	14*	1	0	2
5th „ -	14*	9	11	11	21st „ -	12	11	12	11
6th „ -	0*	11	0	11	22nd „ -	2	11	2	11
7th „ -	12	9	12	9	23rd „ -	2	8	2	8
8th „ -	7	6	7	6	24th „ -	4	0	4	0
9th „ -	16*	7	8	6	25th „ -	31	4	8	6
10th „ -	2	3	2	3	26th „ -	0	4	0	4
11th „ -	10	1	4	0	27th „ -	22	5	13	11
12th „ -	6	4	6	4	28th „ -	5	1	5	1
13th „ -	1	3	0	2	29th „ -	8	1	7	8
14th „ -	7	6	7	6	30th „ -	16	1	16	1
15th „ -	1	3	1	3					
16th „ -	2	11	2	11	Total Rs. -	279	6	185	4

Average of 30 Commandants, 9 years 4 months with their present regiments, and 6 years 2 months as Commandants.

* These officers (who belonged to the cadres of these regiments) had served several years with the corps previous to their last rejoining them from other employment.

SERVICE of SECONDS IN COMMAND of BOMBAY INFANTRY with their CORPS and as SECOND IN COMMAND.

—	With Regiment.		As Second in Command.		—	With Regiment.		As Second in Command.	
	Years.	Months.	Years.	Months.		Years.	Months.	Years.	Months.
1st Infantry -	30	9	10	9	17th Infantry -	31	10	10	9
2nd „ -	17	4	1	1	18th „ -	2	4	2	4
3rd „ -	8	1	7	10	19th „ -	10*	9	8	1
4th „ -	1*	1	1	1	20th „ -	1	10	1	10
5th „ -	5	7	3	11	21st „ -	8	11	7	6
6th „ -	0*	7	0	7	22nd „ -	3	6	3	6
7th „ -	8	8	8	8	23rd „ -	31	5	7	1
8th „ -	3·1	0	10	9	24th „ -	28	6	5	5
9th „ -	1·0	9	7	10	25th „ -	8	5	8	5
10th „ -	29	9	10	9	26th „ -	2	6	2	6
11th „ -	4*	0	4	0	27th „ -	7	8	7	8
12th „ -	1	6	1	6	28th „ -	28	3	9	9
13th „ -	Vacant	—	—	—	29th „ -	8	9	7	8
14th „ -	31	10	10	9	30th „ -	16	1	9	5
15th „ -	11*	4	10	9					
16th „ -	10	9*	10	9	Total - Rs.	393	9	193	8

Average of 29 Seconds in Command, 13 years 7 months with present regiments, and 6 years and 8 months as Second in Command.

* These officers (who belonged to the cadres of these regiments) had served several years with the corps to their last rejoining them from other employment.

MEMORANDUM of the average Length of Service of Commandants and Seconds in Command with their Regiments and in their Appointments.

CAVALRY.

Commandants.

	Years.	Months.
With their regiments - - - - -	8	7
As commandants - - - - -	8	0

Second in Command.

With their regiments - - - - -	14	1
As second in command - - - - -	7	2

Second Squadron Officers.

With their regiments - - - - -	9	8
As second squadron officer - - - -	6	9

INFANTRY.

Commandants.

With their regiments - - - - -	9	4
As commandants - - - - -	6	2

Second in Command.

With their regiments - - - - -	13	7
As second in command - - - - -	6	8

Wing Officers.

With their regiments - - - - -	12	6
As wing officers - - - - -	6	7

SERVICE of WING OFFICERS of BOMBAY INFANTRY on 1st October 1874 with their present REGIMENTS and as WING OFFICERS.

	With Regiment.		As Wing Officer.	
	Years.	Months.	Years.	Months.
1st Infantry -	10	9	10	9
2nd „ -	1*	0	1	0
3rd „ -	20	10	6	8
4th „ -	4*	5	2	4
5th „ -	20	10	10	9
6th „ -	11*	10	4	10
7th „ -	20	11	10	9
8th „ -	2	11	2	11
9th „ -	26	6	7	8
10th „ -	27	7	9	10
11th „ -	27	1	10	9
12th „ -	2	11	2	11
13th „ -	27	11	10	9
14th „ -	29	6	10	9
15th „ -	4*	0	2	2
16th „ -	6	5	6	5
17th „ -	21	6	10	9
18th „ -	10	7	10	7
19th „ -	0	9	0	9
20th „ -	5*	1	5	1
21st „ -	11	6	7	6
22nd „ -	3	11	3	11
23rd „ -	7*	2	5	7
24th „ -	22	6	5	5
25th „ -	0	7	0	7
26th „ -	4	3	4	3
27th „ -	7	3	5	10
28th „ -	23	8	9	9
29th „ -	7	8	7	8
30th „ -	9	3	9	3
Total - Rs.	381	1	198	2

Average of 30 Wing Officers, 12 years 6 months with present regiments, and 6 years 7 months as Wing Officers.

* These officers (who belonged to the cadres of these regiments) had served several years with the corps previous to their last rejoining them from other employment.

SERVICE of SECOND SQUADRON OFFICERS of BOMBAY CAVALRY on 1st October 1874 with their present REGIMENTS and as SECOND SQUADRON OFFICERS.

	With Regiment.		As Second Squadron Officer.	
	Years.	Months.	Years.	Months.
1st Cavalry -	20	0	9	4
2nd „ -	15*	10	10	9
3rd „ -	4*	11	4	1
Poona Horse -	7	7	7	7
1st Sind Horse -	6	2	6	2
2nd „ „ -	9	4	6	2
3rd „ „ -	4	0	3	0
Total -	67	10	47	1

Average of 7 Second Squadron Officers, 9 years 8 months with present regiments, and 6 years 9 months as Second Squadron Officers.

* Belong to the cadres of the regiments, and had served several years with the corps previous to their last rejoining them.

D.

Heading—Promotions.

No. 1578.

To the Secretary to Government, Military Department.

SIR, Poona, 9th November 1872.

As requested in Government Resolution No. 3347, 31st July 1872, and under the orders of his Excellency the Commander-in-Chief, I have the honour to submit the following remarks relative to the selection and promotion of Native commissioned officers, and the improvement of the efficiency of these officers.

2. I am in the first place to annex copy of Adjutant-General's Circular No. $\frac{12}{N}$, 5th August 1871, which should have accompanied my previous letter No. 356, 3rd May last. This circular, it will be observed, introduces into the Native army a system of school certificates similar to that in force in British corps, and (para. 6) requires that, as a rule, candidates for promotion to and in the non-commissioned grades, shall be in possession of 1st, 2nd, or 3rd class certificates according to the grade to which promotion is to be made.

3. This will ultimately ensure a fair amount of education among the Native commissioned ranks.

4. It will be seen that the above circular and the regulations, copies of which accompanied my previous letter, required certain qualifications in regard to education, character, conduct, and service.

5. Beyond these advantages, which follow directly and indirectly from an adherence to the rules laid down in the rules above referred to, no special measures for improving the efficiency of Native officers have been taken.

6. After the promotion of a non-commissioned officer to the commissioned grade, his improvement and efficiency must chiefly rest with his commanding officer. If the latter is not constant in his endeavours to improve him by practical as well as theoretical teaching, we may look in vain for any knowledge of the military art beyond the limits of the parade ground.

7. And it not unfrequently happens that men who have been excellent non-commissioned officers, and who might naturally be expected to prove equally good commissioned officers, immediately after the novelty of their rise to the commissioned grade has worn off, become listless and apathetic, lose all their energy, not caring for supersession in promotion (the only mode of dealing with such men), knowing they have already attained a position for a comfortable pension, which their only object is to get as soon as possible, without caring to serve some years longer for a superior one.

8. It must always tell against the efficiency of a Native officer that so soon as he takes off his uniform he mixes freely, and eats with his comrades serving in the ranks; and much of the restraint of discipline is thrown aside for the time.

9. Besides this want of appreciation of the superior status conferred on him by his commission, a great failing of the Native officer is a dread of responsibility, and Sir Augustus Spencer is convinced that few would prove themselves equal to an embarrassing situation on an independent command.

10. The Commander-in-Chief thinks it is to be regretted that most of the civil escort duties, such as treasure and convict escorts, escorts to the Revenue Commissioners, &c. &c., were taken away from the regular army and given over to the police. Sir Augustus Spencer is aware that this measure was adopted on financial grounds on the reduction of the Native army and increase of the police force; but his Excellency would remark that in times of peace it is such duties that teach the Native commissioned and non-commissioned officers to exercise their wits, and to rely on themselves.

11. That there has been an improvement generally in the stamp of Native officers of late years there is no doubt; they are better educated, more intelligent, and younger men, but they have not yet come up to the standard required to admit of their being termed efficient for the posts they occupy under the new organization.

12. In an able article entitled "Camp Lessons, the Native Officers of our Indian Army," which appeared in the sixth number of Proceedings of the "United Service Institution of India," for May 1872, the writer makes a suggestion which appears to commend itself, viz., "The introduction of "Station Boards of Examination, similar to those assembled from time to time to test the fitness "of British officers for their promotion, to be composed of selected officers and to test the candi- "dates critically, both by verbal and practical tests, according to such rules as the military "authorities might decide.

"These examinations should be of two standards, the lower to pass candidates for the com- "missioned grade, and the higher to qualify them for promotion from the lower to the higher "grade. * * *

"Candidates for the commissioned grades, once they had passed their examination, should be "considered eligible and entitled to succeed to vacancies by seniority, subject to certain condi- "tions of conduct and age; similarly once appointed apart from the examinations the further "promotion should also be subject to certain conditions of conduct and age."

The Commander-in-Chief is of opinion that the adoption of some such tests would prove beneficial in several respects; it would inspire emulation among the non-commissioned ranks, and raise their standard of qualifications.

13. But if the efficiency to which the Government of India alludes refers to such efficiency as shall enable a Native officer to represent the British officer who formerly commanded a company, Sir Augustus Spencer can only say that, in his opinion, this will never be reached.

14. The efficiency of Native officers is, in Sir Augustus Spencer's opinion, most intimately connected with, and dependent upon, their association with their European officers, by whose demeanour towards them, and example in the performance of duty they are influenced, and whose superior education and higher moral code, when combined with kindly intercourse, gives a tone and *esprit de corps*, which under these favourable circumstances affects the commissioned and non-commissioned ranks, and through them the whole regiment.

15. The pernicious influence of caste prejudice, and the effects which follow from the circumstances of the Native officers being raised from the ranks, can only be met and counteracted by the influence which comes from association with the educated European officer.

16. The new organization of the Native army, annihilating, as it did, the old regimental system, and introducing the system of officering regiments from the Staff Corps, has undoubtedly had the effect of vitally marring the intimate association and cohesion which before 1857 existed between the European and Native officers and men. The European officers then rose from the position of ensign to the command of companies, and eventually to the command of the regiment, and during the course of years they learnt to know the men, and to take an interest in all matters that affected their welfare; there arose a true reciprocity of kindly feeling and mutual confidence, and however the present state of things may be represented, Sir Augustus Spencer thinks that the condition of the Native army at the present time, so far as its *morale* is concerned, is decidedly inferior to what existed before the mutinies.

17. His Excellency is also of opinion that, under the present system, with but few European officers, and those often strangers to the men, an increase of loyalty, and attachment to the service, and good influence over the men in the lines cannot be looked for among the Native officers.

18. A return to the former regimental system would thus seem to commend itself, for it would be found impracticable so to train Native officers as to make them equal to, or do the part of European officers, for their natural constitution is such that they cannot exhibit that moral firmness which would enable them to bear and accept responsibilities like the British officer.

19. As already observed, much of the efficiency of our Native officers must depend on the personal exertions of their commanding officers, and it is not, in the Commander-in-Chief's opinion, to be realised by the application of any set rules or measures that might be devised for this purpose, and his Excellency would repeat that he has little hope that the present organization will make our Native officers a substitute for British officers—a fear that his Excellency believes is shared by all those who have served the greater part of their lives with the Native army, as well as by many distinguished officers who have given the matter their earnest consideration.

I have, &c.

C. T. Aitchison, Brigadier-General,
Adjutant-General of the Army.

Since this letter was submitted to Government it has been brought to notice that one of the most experienced and valued Native officers of the Bombay army has recommended that a non-commissioned officer should not be promoted to a Native commissioned officer in his own regiment, but into some other; the reason given for this recommendation is, that, as a body, non-commissioned officers promoted in their own regiments find it very difficult to uphold their new position amongst those of their own caste and family, with whom they have been accustomed to associate on even terms.

The Commander-in-Chief thinks that there is much to be considered in the above recommendation; arrangements might easily be made to carry out promotions on the principle suggested.

14th October 1873.

MINUTE by the HON. A. ROGERS, dated 13th June 1875.

The questions on which our opinions are asked being of the most vital interest to our Indian empire, I consider that not only they themselves require the most careful examination, but also that the remedies proposed by the chief military authority in the Presidency demand such scrutiny as may fairly be bestowed upon them from points of view from which our experience of civil administration and local knowledge enable us to look at them.

After a service of nearly 30 years in India and intimate association with military men of all ranks during that period, both under the old and the new *régime*, I can safely state my experience to be that the result of the latter is on the whole unsatisfactory. It is quite clear that the old *esprit de corps* formerly existing among the officers of the Native regiments, and engendered by men entering a regiment as mere lads and working their way up in it has disappeared. An officer of the Staff Corps sent to a regiment of course does his duty by it, but he does not go to it (except in the rare instances in which it happens to be his "old corps," as many old field officers still fondly call the regiments they joined as ensigns) as to his home, or rejoicing in the opportunity of seeing his old comrades and renewing those ties of mutual sympathy and esteem that formerly bound together the company's officer and his men. For now in the course of a few years he may be with half-a-dozen new regiments, having perhaps hardly time to become personally acquainted with the Sepoys and Native officers of one before he is sent off to another. I cannot but think that the effect of this want of knowledge of each other's character, and the consequent absence of sympathy with each other, will be very painfully felt in case of any hard service in the field. A Sepoy would follow "his own Captain Saheb" to the death, but he would shrink from the charge probably under the leadership of any other Saheb. There can be no doubt, therefore, to my mind, that any plan of reorganization that would tend to keep the same officers with the same men for the greater part of their service would be a move in the right direction towards restoring the old state of things. I quite concur with Sir A. Spencer in thinking that a degree of efficiency which would enable a Native officer to represent the British officer who formerly commanded a company will never be reached, at all events so long as the present system of promotion from the ranks continues. Nor with the example of our own European army before us do I see how the system can be expected to answer. The officers to a great extent should always be, so to speak, of a superior cast to their men, and they must not "as soon as their uniform is off mix freely with and eat with their comrades serving in the ranks." If Natives of the good families can by any means be admitted to direct commissions—I mean such men as the younger sons of Rajahs and Chiefs of Mussulman or Rajput lineage, of course on pay that would enable them to maintain their position—I think the experiment would be well worth what it would cost, as tending to attract towards our rule a class of men who now spend their lives in dissipation and sulkiness for want of a fitting field on which to expend their energies. I do not believe that whatever may be the educational tests devised to ascertain the fitness for promotion of the present rank and file of the Native army, they will ever rise to the requirements of officers under the modern system of warfare, in which the use of arms of precision tends more and more to throw responsibility on the shoulders of company officers, and of course requires in them an ever increasing degree of general intelligence, to be gained only by long training and the cultivation of the natural faculties essential for the leadership of others. The introduction into the ranks of our officers of Natives of good family and education must be a work of considerable time, and in the meanwhile the improvement of the status of our European officers presses for consideration.

His Excellency the Commander-in-Chief and Brigadier-General Aitchison propose a reorganization of the Native army in such a form as to provide a full complement of European officers for a smaller number of regiments, each of three battalions, with a view to battalions on service being capable of being strengthened and subsequent casualties being filled up from the other battalions. His Excellency the Commander-in-Chief would have the normal strength of each battalion, both in officers and men, the same, whereas General Aitchison would reduce the strength in the 2nd and 3rd or garrison and reserve battalions as distinguished from the 1st or service battalion. The latter goes further, and proposes to localise the reserve battalions in certain centres where all recruiting for the corps must take place, recruits passing only through the reserve into the other battalions, and the head-quarters of the reserve being as it were the home of the whole regiment.

With regard to these suggestions I see no object in having three battalions for each regiment that would not be equally served by having two. The reserve battalion would serve as the home and nursery of the whole corps, and the service battalion would move about from station to station or go on service as the present regiments do. I do not understand what General Aitchison's 3rd battalions would do if they did not take the garrison duties for which he would provide in periodical reliefs by his 2nd or garrison battalions. The reserve battalions must of course be quartered in cantonments and other places where ordinary garrison duties would have to be performed, and I cannot see why they should not perform them as well as the movable 2nd battalions he proposes. It appears to me that officers might be considerably economised by having one battalion always ready for field service with its full complement of officers, and the other at the head-quarters of the corps doing garrison duty, with only a sufficient number to look to the drill and discipline of the stationary men and the finance of the whole corps. I am of course not sufficiently acquainted with the details of regimental administration to lay down the exact number there should be allotted to each, but taking General Aitchison's scheme as it stands, it might be practicable to do without the eight officers he would attach to his garrison battalion by giving two more to his reserve. I do not understand General Aitchison's remark "subject to modification as regards capability for enlistment" with reference to the permanent stations of his reserve battalions to mean that recruiting for each particular corps is to be limited as a rule to the particular province or district in which the head-quarters are located. The idea would be quite impracticable, for at all events neither Guzerat nor Khandesh would provide

recruits sufficient for a single company, much less for a whole corps. Probably, however, more would be done towards inducing the inhabitants of particular provinces such as those named to enlist if a guarantee were given that men would be periodically allowed a term of service with the reserve battalion.

The measures that require to be taken to keep up the full complement of European officers and prevent what was certainly a prominent evil of the old system, viz., the removal of so many from military duty to civil employ in various departments, remain for consideration. I quite concur that for those officers who finally elect the latter, say after experience of a year or two, the road to military promotion should be barred, and they should be transferred to the civil list. In such cases some fair arrangement should be made by which services in the army should be allowed to reckon towards pension in the Civil Department. Military staff appointments should be filled, as proposed, by officers of the army, who should while so employed be seconded.

Whatever system of appointment to the Indian army may be followed, I am clearly of opinion that all young officers, both of the British and Indian armies, should be for a certain time trained together at Sandhurst or some similar institution as his Excellency the Commander-in-Chief recommends.

Such military details as the working of double companies I am not competent to discuss.

(Signed) A. Rogers.

Minute by the Hon. J. Gibbs, dated 25th June 1875.

1. The letter of the Government of India seems to open up the question of the general reorganization of the Native Army and of the Staff Corps, and to be in fact an admission that of the great scheme which found such favour after the mutinies, and which had for its apparent object to vary everything which had existed in the time of the late East India Company, so much as was applied to the army has proved a failure.

2. It always seemed to me that the reorganization of the regiments in imitation of what used to be called the "Irregulars" was done without a full consideration of what the organization of those corps really was.

3. It has been often urged by men who have proved themselves the best officers in our service, —beginning with Sir John Malcolm,—that the command of a Native regiment should be the most sought after of all existing appointments. This was the case in the old irregular regiments, and the result was what Sir John foresaw.

4. The fact that three or four European officers had brought such a regiment into first-rate order was apparently considered a sufficient proof that four or five European officers were enough for every Native regiment, forgetting the great point that in these irregular regiments the European officers were picked men, that the regiments had grown in efficiency in proportion as the commanding officers and the *confrères* were absolved from the thousand and one inflexible orders which formed the leading strings from which the men and officers of the old line regiments never got free.

5. Then, again, in those corps not only did the officers take deep interest in and were proud of their men, but the personal character of the officers communicated itself to the men, and their high moral tone permeated as it were through the corps from the senior native officer to the youngest recruit.

6. In regiments such as these the Native commissioned officers differed from their brethren in the regular regiments as much as any two supposed similar objects could. Their bearing, their military knowledge, and their general intelligence were markedly different; and the instances are numerous where in times of emergency, when placed in positions of great difficulty, they never failed to act as men so trained would be expected to act.

7. To turn the regular cavalry, composed of men who had been used to have everything found them day by day, at once into Silledar corps, where every man had to provide for himself, his horse, and his baggage, was a bold experiment, and one hardly likely to result in their speedily becoming equal to Fane's or Jacob's Horse; while to expect that by putting five or six officers, drawn perhaps from as many different corps, to a Native infantry regiment you would find the men honour, respect, or follow them in action as the Beloochees or Sikhs follow their officers, was more than the most sanguine advocate of the scheme had a right to hope for.

8. And yet this was what was done; and now, some 15 years after, the reorganization of the Native regiments and the best manner of supplying European officers for the Native army comes up again for consideration.

9. I am quite willing to leave that portion of the reform which relates to purely military questions to his Excellency the Commander-in-Chief; but perhaps it may be allowed a civilian member of the Government, one who, for some of the best years of his service, was constantly with the officers and men of the irregular corps of his Presidency, to offer an opinion on some of the more general questions involved.

10. And first as to the general organization of the Native army. I had the benefit of hearing this discussed between some of our best officers, military and civil, in 1858; and I have since discussed it from time to time with our own officers both here and at home, and with Sirdars of high positions in the Native states surrounding this Presidency, and I feel assured that to secure the loyalty of the men and to maintain an *esprit de corps*, without which a regiment is but of little use, there are some arrangements which must be considered as actual necessities.

11. We must remember that the Native army, as compared with the European, can at the best be but an army of mercenaries, whose faithfulness and loyalty we must acquire and retain by other means than we should employ in an army of our fellow-countrymen. We must pay them well and treat them well, and under such circumstances we must on economical grounds have as few as we can manage with, and those should be as efficient as we can make them. To keep a

larger force than is necessary, simply because we keep it at a comparatively low state of efficiency, fearing that to have it in a high state would make it dangerous, is, in my humble opinion, a blunder of the greatest magnitude, both financially and otherwise.

12. The question then for consideration is, How can we arrive at the best and most faithful Native army? And the first point that occurs to me is that fixed head-quarters are absolutely necessary—a regimental home—where the families will remain when the regiment is on active service, not in the care of strangers, but with their pensioned relatives or friends and the older and less efficient men of the corps to protect them—where the recruits will be reared and trained, and while so learning their duty will hear the deeds of the regiment recited by those who are now enjoying the pensions which their good service has earned; and so the recruits will become more thoroughly a part and parcel of their corps, proud of the deeds it has performed, and animated with a desire to emulate, if not surpass, them.

13. What was it that kept the Sind horse, composed chiefly of Mahomedans of the North-West Provinces and Pandays from the valley of the Ganges, so loyal in 1857, when not only sorely tried by the men of a mutinous regiment sent to the frontier to be taken care of, but urged to rebellion also by the leaders of the tribes on the border, all anxious to regain their ancient freedom to loot their weaker neighbours, and, moreover, with the example of the mutinous conduct of their own relatives in the Bengal army, of which they had full knowledge, but the fact that they had their families and their all in the camp of Jacobabad, and that they could not leave them?

14. Far be it from me to depreciate those gallant regiments, or to impugn the principles on which they were raised and ruled. But I never could doubt that this fact was the main cause for their thorough loyalty at that critical time.

15. Whether this could be best provided for by the scheme of Brigadier-General Aitchison, or by that of his Excellency the Commander-in-Chief, I leave to military authorities to determine. What I urge as the first essential point is that there should be a regimental home—permanent head-quarters—where the old and pensioned may find a place of rest and the recruits a nursery and a school.

16. The next point is the pay. I do not think the present rates sufficient, at all events at some of the stations, *e.g.*, Bombay itself. It may be higher at first sight than Native Princes would give, but the circumstances of the two forces cannot be compared. I believe Rs. 5 a month in Scindia or Holkar's force would go further than the highest of our rates of pay in our own presidency, and I think it would be good policy to pay them better than at present.

17. Then, as to recruiting, and the races and creeds to be entertained, I venture to think that this should be left as much as possible to the commanding officers, whose sole object will be to get the best men. Doubtless permanent head-quarters would lead to many local recruits; but I do not think that any of the proposed districts in this presidency would afford sufficient recruits for a regiment; and I further think, from what I have seen, that to have very many of one district is not good; a mixture is the best, and it will not interfere with the scheme for permanent head-quarters, for even the foreigners will settle there, and after a time as it were forget their individual nationality and merge into the great family of the "this or that number regiment," and this is to my mind the most important point to attain.

18. Of course, to form them into soldiers, which is all Government has to look at in the men, caste and creed, nation and tribe, must be ignored; and the more this is done, the more united will be the corps as a regiment of fighting men.

19. Next comes the question of Native officers. I should venture to assert that were an honest selection of the best men by a competent commanding officer, without more regard to seniority than in cases of men otherwise equally fit, the rule, there would be such a feeling of emulation set up among the men as would not only give the commanding officer a constant supply of good Native officers, but would tend to improve the entire regiment from the lowest to its highest rank.

20. I should be very sorry to see the Native commisioned officers reduced in numbers; they should be the mainstay of the regiment, and they would be if properly selected.

21. It has been urged by some, and the scheme has the high sanction of Lord Napier of Magdala, that we might get the sons of chiefs and nobles—the gentry of the land—to join our regiments as Native officers. I will not discuss the measure here, as I feel sure that the number who would take service as such would be so few that it would be many, many years before any results could be shown. My own opinion, moreover, is that all such young men would prefer to serve Holkar, Scindia, and the other Native chiefs before our own Government.

22. I see it hinted at that Native officers may become too good, and therefore dangerous. If the European officers are what they ought to be, this could hardly occur; and the better the Native officers, the better will be the regiment, and the best regiment is the cheapest.

23. One only point remains for notice, and that is the arms to be given. I venture to think the late resolution to arm the Native infantry with breech-loaders is a wise move. We should make our Native troops as efficient as we can, and we must especially abstain from any action which would lead them to suppose we distrust them. They should have as good arms as our Europeans.

24. The above are my views on the question of the general re-organization of the Native army. It is a subject I have often discussed, and regarding which my views have not been formed hurriedly. Whatever they may be worth, they are the result of many years' observation, and as such I venture to place them now on record. If my language is plain, it is because I write under a very strong feeling that our Native army is not what it could be made, namely, a thoroughly efficient and loyal body of troops, who might, if properly officered, be trusted in internal as well as external warfare.

25. I now proceed to the consideration of the second portion of the subject, namely the best system for the appointment and promotion of officers for the Native army.

26. This is rather a complicated matter, as among other points it must include a decision as to

the number of officers required for a regiment both in time of war as well as of peace; a plan for settling the present Staff Corps as to those officers who are in purely civil employ; the best system of education for the young officers hereafter to be appointed to the Indian army; and whether for the future officers are to be allowed to leave the military and go into civil employ, and, if so, under what restrictions. Rules also are required as regards the military staff, both adjutant-general, quartermaster-general, and their assistants, as well as the Commissariat and Finance Departments.

27. The wisdom of our ancestors, those who fought and conquered India, fixed on a much larger proportion of European officers to the Native regiments than was settled at the re-organization in 1859–60; and if I do not mistake, the number which had been from time to time increased at last amounted to about 24 per regiment. Not unfrequently one half of these during time of peace were in civil or other employ away from the regiment, but all had to join when it proceeded on active service.

28. This was an economical arrangement, as it provided for the full complement in time of war, and yet in time of peace saved the Military Department the cost of many, by their being employed in civil and other services, and from whom arose that noble band of political officers, the Outrams and the Lawrences, and their like, to whom this country and its Government owes so much.

29. It would not be fit for a civilian like myself to offer an opinion as to the number to be fixed on as the proper complement for a regiment, but I may point out that it seems to me that one of two systems must be adopted; namely, either to go back to the old plan of the full complement of officers which would be required in the time of war so as to allow of a portion being employed elsewhere than with their regiments in the time of peace, or to settle the number purely on a consideration of what is requisite for the regiment in war or in peace, and leave the political and other civil appointments to civilians either covenanted or uncovenanted.

30. I will now consider the system for securing young officers for the future. I prefer the latter of the two plans suggested by his Excellency the Commander-in-Chief in his reply to section (*a*) of question I., namely, that a Military College should be established in England in which all cadets chosen for the Indian army should be educated for two years. The advantages of such a scheme are many and great. Men so educated become "*a body*," not formed simply by the weak tie of belonging to the same service, but by the stronger ties of friendship and companionship, which tend to strengthen their interest in the common service in which they are to be employed, while it brings India before them more clearly as their future home, their education being in some respects, especially as to languages, closely connected with that country. The fact that for two years they are being educated together for India will kindle a more favourable feeling towards that country than any other system could possibly do. The present system sends out so many isolated units; the other would send out a strong connected band.

31. Whatever may be the plan which may be fixed on for the general selection of the cadets in the first instance, I trust some special means may be provided for the admission of the sons and nephews of officers of the Indian services. Competition pure and simple should not, I think, be the rule, though of course when once in college all must alike trust to their own abilities and conduct alone to secure success in the final selection.

32. I venture to think that when such cadets come out, they should be attached not to European, but to Native regiments. As far as my own experience goes, the effect of attaching them to European regiments has been to make them look down on the Native army, and so far from their gladly joining it, they do their utmost to get civil employ. I believe the six months with a European regiment does more harm to the young man who is to be a Native infantry officer than any subsequent training or advice can cancel.

33. Let them at once be sent to a Native corps and kept there for two years to learn not only their duty, but the character and habits of the men, and then let them be posted to the regiment in which they are eventually to rise.

34. They should be led to look to the Native army as their home, and regimental staff their first reward, after which the military staff of the army, while the command of a Native corps should be held up to them as the greatest honour and the most trusted appointment they can attain, and only when there may be a surplus beyond the wants of the army should any be allowed to seek civil employ; and with those who obtain such, it should be the rule that should they after two years' experience be considered fit for such duty, they should be obliged to make their choice once for all whether they will rejoin their regiments or be transferred to a civil staff list, into which once entered they would cease to be military men.

35. I am aware that the police appointments are considered such that officers holding them do not, if they return before they become lieutenant-colonels, render themselves unfit for further military duty. This is a matter more for the military authorities to decide; if they hold to the opinion, the officers chosen should, as if on the military staff, be seconded for the time they are so employed.

36. The political department has also been exempted from disqualifying an officer from subsequent military employ; but I much question if this be the case now. Our political officers as a rule are with their cutcherries and their courts as much civilians in their duties as their brethren of the regular civil service. There may be exceptional cases on the frontiers, but in the ordinary run, political officers see as little military service as civilians. I doubt, therefore, the wisdom of giving them the option of returning after many years civil life to military duties.

37. The above are the only observations which occur to me with regard to the future officers of the Indian army.

38. The next point is what is to be done with the present Staff Corps (for the general list is so small that it could easily be made to conform with either the new system, as above described, or follow the plan to be adopted with the Staff Corps). One thing at the outset is clear, they must retain their present rights. The matter is complicated, but the difficulties are not insurmountable.

39. We should, I think, at once remove to a separate list all who are in permanent civil employ, leaving their names in italics as seconded, their promotion going on as now in that corps. This, according to the Army List for April (the latest I have at hand), would remove 118 from a total of 466 (not counting officers on colonels' allowances). There are also 29 police appointments not included in the 118, although the cantonment magistrates are.

There are also 29 on the civil staff of the army commissariat, finance, and schools. If these $29 \times 2 = 58$ be deducted from the 348, there would be left 290 for regiments and military staff, of which latter there are 25, and which, if deducted, would further reduce the number for regiments to 265. To this must be added 43—5=38 of the general list. There would be then a total of 303 for the Native regiments, cavalry and infantry, which number 37, or about eight to a regiment, not allowing for furloughs. This proportion will doubtless be reduced, as some of those I have included will take the bonus this year. (For details see margin.) It is clear from this that there are not sufficient officers for simple regimental duties, and that a large influx might be admitted.

Total Staff Corps less than on colonel's allowance		466
Civil Staff		118
Balance		348
Police 29, Military Civil Staff 29		58
Balance		290
On Military Staff		25
		65
Add general list 43—5, or difference		38
Balance		303

Fo rregimental duty,
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296
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40. As regards the military staff of all descriptions, I presume that whatever be the final decision as to the number of officers to a regiment, there must be a larger number required in time of war than in time of peace, while some allowance must be made to enable officers to proceed on furlough. When a force takes the field there are always many staff appointments cropping up, which must be supplied by the officers of the regiments employed. It will follow then that the service complement will so far exceed the peace establishment that all ordinary military staff appointments may be easily filled from this surplus.

41. The necessity of an early reply has prevented my placing my views with greater detail; but I deem it my duty to record them, imperfect though they are, as the resolution drafted by his Excellency the Governor does not touch on some of the points. While agreeing, therefore, to that being sent to the Government of India, my request is that this minute may accompany it.

The 25th June 1875. (Signed) J. Gibbs.

Native Army—Organization.

Confidential.—No. 1,932B.

To the Secretary to the Government of India, Military Department.

Adjutant-General's Office, Army Head Quarters,
Simla, 14th August 1875.

Sir,

I am directed by the Right Honourable the Commander-in-Chief to acknowledge the receipt of Military Department letter, No. 781 of 17th February last, and, in compliance with the desire of Government, to submit the opinions of his Excellency on the several points therein referred to, connected with the organization of the Native army.

Question I.—Does the present mode of appointing British officers to the Staff Corps work well as respects providing officers for the Native army, and is it attended with injury to British regiments?
If the system is inconvenient, what alteration in it would his Excellency recommend?

2. Although there are some disadvantages connected with the present method of appointing officers to the Staff Corps, among which not the least important is the possibility that young officers who have served with British corps may acquire a distaste for service with Native troops, the system as a whole appears to the Commander-in-Chief to work better than any other which has been proposed, and his Excellency therefore does not recommend any alteration in it.

3. Were the feeling above referred to likely to become permanent or incurable, the evil would form an objection to this method of officering the Indian army which could not be overlooked. In those cases, however, which have come to notice, it has generally been observed that as the duties of such young officers bring them into closer contact with the Native soldier, and as their interests in their new regiments increase, the feeling wears away, leaving behind it only the very decided advantage of the early training obtained in the undeniably good school of a British regiment, which, without doubt, does lead to a degree of efficiency and good tone of which there is no assurance in any system of direct appointment.

4. With reference to the query as to whether the present system has an injurious effect on British regiments, it would seem probable that the withdrawal of so many junior officers, some of them the smartest and best who join the corps, must be attended with a degree of inconvenience if not of positive injury to the interests of the regiment; inasmuch as it tends to unsettle the minds of the junior officers and weaken the interest of those who determine to join the Staff Corps, in the regiments of which they are temporary members. On the other hand, those young officers who know that their career must be in the Indian service, and that they will not be admitted to the Staff Corps unless they can produce satisfactory testimonials from their commanding officers to their conduct and efficiency, have a strong inducement to win the approbation of their superiors. They must also have shown some power of self-control in applying themselves to the study of the native languages. The general expressions which have come to the Commander-in-Chief's notice, regarding the young officers that have of late joined the Staff Corps, have been great regret on the part of the commanding officers who were losing them, and great satisfaction on the part of those to whom they were going. A British regiment has a large reserve of senior officers, who either are unable, or do not desire, to join the Staff Corps, and their presence secures the preservation of the traditions and well-being of the regiment, and, to a great extent, counterbalances the objections which might otherwise exist to the systematic removal of the younger officers.

5. The recent requisitions made on British regiments for officers for the Staff Corps have been exceptional; there was for some time a remission of the demand followed by an increase. The officers who entered the army with the view of joining the Staff Corps were checked for several years and accumulated in certain regiments; when the demand was suddenly increased, all these officers at once seized the opportunity to join the Staff Corps. It was not possible at the time to prepare for this, and the temporary inconvenience was considerable, but there will not in future be any insuperable difficulty in dealing with such an emergency. It is probable that if the action of the Staff Corps continues without any violent changes, the demands on British regiments for officers will be moderate and regular.

Question II.—Is it possible under the present system to retain and advance officers in the same regiments with due regard to the claims of other officers; and should not some regulation on the subject be laid down, in order that the procedure in making promotions may be based on uniform principles, and not liable to change according to the views of each Commander-in-Chief?

If such regulations are desirable, his Excellency is requested to suggest a rough draft.

6. In answer to this question the Commander-in-Chief would reply that his Excellency believes it is possible to "advance officers in the same regiment;" that is, to preserve regimental succession as a rule, with due regard to the claims of other officers; and that regulations on the subject are certainly required in order that the procedure in making promotions may be based on uniform principles.

7. To support this position it is necessary to review the conditions of the old and the present Native armies. In the old Native army officers had a right to regimental succession, of which nothing could deprive them but the sentence of a court-martial; but they had no claim to equality of promotion with officers of other regiments. The officer A of the 1st regiment who started as an ensign on the same day with B of the 2nd regiment, had no grievance and never professed to have one because the casualties in the 2nd regiment promoted B to be a captain while A continued an ensign. The same ill-luck might have pursued A until B might have become a lieutenant-colonel in army rank and commanding the 2nd regiment; while A might have been only a captain in the 1st regiment, B would have been receiving lieutenant-colonel's pay and the command allowance, Rs. 1402–4–0, and A receiving only his captain's pay and the company command allowance, Rs. 445–6–0. It is necessary to bear this in mind in considering the position of officers of the present army.

8. No such disparity of fortune can arise between officers of the Staff Corps. If A and B enter the Staff Corps on the same day, both having the same previous service, they receive their respective promotions and the Staff Corps pay of their rank, for each grade, on the same day. They have accepted the Staff Corps rules. A has no ground of complaint, based on actual right, if owing to more casualties in the regiment B has joined than have occurred in A's regiment B should become a second in command or a commandant, while A remains only a wing officer. If they should meet apart from their regiments, the Staff Corps senior would take precedence and they would be receiving the same Staff Corps pay. But although there would be no legitimate ground of complaint, it is wise and expedient to try and avoid such disparity as far as possible without sacrifice of regimental efficiency.

9. Various circumstances and the action of rules, some of which have been altered, have caused in the present armies of India more instances of irregularity of position than is desirable; but it is believed that by a steady adherence to the rules hereafter proposed, the service will regain as near an equality of advantages for all officers as could be secured without sacrificing the welfare of regiments, the claims of regimental succession, and the efficiency necessary to maintain battalions in the highest possible order.

Appendix A.

10. Although the Commander-in-Chief considers regimental succession as a rule necessary for the interests of regiments, for maintaining the inestimable feeling of *esprit de corps*, and for creating that bond of confidence and attachment between the Native soldiers and their European officers, which all who have known the Native armies have considered the surest guarantee for devotion and fidelity, yet some exceptions to the rule must be admissible as long as there remain officers unemployed who have become so, not from their own fault, but by the action of rules now or formerly existing. Some of these officers may be highly efficient, and may have claims of long service with regiments, out of the establishments of which they passed involuntarily; and their absence may not have been so long as to have effaced their interest with the men, or to render their return to regimental duty inexpedient. Such officers might have a claim to a vacancy in a regiment superior to that of the next for promotion; and in the interests of the service and the regiment they should be restored to the regimental establishment. Cases of the above nature must be dealt with according to their merits, but no officer should be returned to a regiment merely for his convenience, nor should any be posted to a regimental appointment for which his age and rank render him unsuited.

11. The successive tests of qualification now demanded from all officers, coupled with the system of garrison instruction, provide a guarantee for the acquirement of technical knowledge and a security against incompetent officers in future reaching high regimental positions. Instances however might occur where the interests of the corps or even of the service might demand that the regimental promotion of an individual officer should be checked or delayed, and it should be within the competency of the Commander-in-Chief, as in the British army, to deal with these cases as he may consider best. Officers proved to be wanting in military capacity, or unfit for the duties of their position, especially wing officers declared ineligible for regimental command, should be required, under the orders of Government, to retire on the pension to which, at the time, they may be entitled, unless the Government can find other employment for them to which they may be suited.

12. An essential element in a scheme of regimental promotion is the adoption of some plan by which a reasonable flow of advancement within the regiment can be secured, and with this object it is proposed that all officers on the attainment of the rank of colonel in the Staff Corps, shall, *ipso facto*, vacate their regimental appointment, subject to re-appointments for five years, provided they be thoroughly efficient and in every respect well qualified to continue in the exercise of their duties. This measure, which would be applicable to commandants and seconds in

command, would facilitate the termination of regimental duties after 31 years' service if the officer should not have retained the degree of efficiency which led to his appointment; and would allow a further term of five years to officers of approved fitness whose executive regimental work would terminate about the age of 55 years, at which age all civil appointments are vacated. Officers of the local service should, subject to re-appointment as in the case of Staff Corps officers, vacate regimental employment on completing five years' service from the date of obtaining their substantive lieutenant-colonelcies, or on the attainment of colonels' allowances. These rulings would not, however, apply to officers who became colonels, before the fixed periods, by the operation of brevets obtained for war service, or in consequence of having held qualifying appointments.

For present services of officers, *see* Appendix P.

13. The instances in which senior officers are serving under the orders of juniors or holding inferior appointments in regiments are detailed in Appendix B.; but they do not seem to be of sufficient importance to warrant, on their account, the condemnation of the present organization. The number of such cases will to a certain extent diminish, and even now they do not present greater difficulties than are to be found in a large number of the British regiments serving in this Presidency. Many of the cases of supersession among the captains, which are shown in Appendix B., will disappear on the Staff Corps captains obtaining their majority after 20 years' service, when they will regain their original seniority to the captains of the general list who have had rapid promotion up to that rank, but must serve 20 years for the rank of major.

Question III.—Does it often happen that senior officers are serving under the orders of juniors in Native regiments, and if this is the case, and inconvenience has arisen, how is it to be avoided under the Staff Corps system of promotion? How many cases of the kind are there at present?

14. The orders of Government which required captains who were adjutants, quartermasters, and wing subalterns, to vacate their appointments on proceeding on furlough, but directed their re-appointment to a regiment on return to India, account in a great degree for the numerous instances of supersession among officers of this rank, as it was impossible to expel those holding the various appointments, in order to make room for their seniors on their return to India.

G. O. 65 and 206 of 1869.
G. O. 16, 22, and 98 of 1870.

15. The action of Staff Corps rank may on some occasions tend apparently, though not in reality, to complicate the positions of officers holding regimental appointments; inasmuch as it may happen that an officer of six years' service in a British regiment might join the Staff Corps and a Native regiment, after an officer of three years' service; and, if regimental succession is observed, the junior officer will at some future time (say 20 years) be second in command with the rank of major, while the senior is wing officer with the rank of lieutenant-colonel. A case, however, of this nature can no more afford ground of complaint than the results of exchanges between officers of British regiments, or than the action of field service brevets under which officers serve regimentally below those whom they have superseded in army rank.

16. The proportion of senior to junior British officers now existing in the Native army is detrimental to general efficiency, as it necessitates the employment of senior officers in subordinate positions; and thus, while disheartening the seniors, deprives the juniors of those appointments suitable to their standing and position in the service.

Question IV.—Is the present proportion of senior to junior British officers in the Native army attended with injury to that army; and is there a sufficient number of young officers coming on?

17. More especially has it been disheartening to those officers who performed distinguished services in 1857–58, and who, owing to successive reductions, or the disbandment of their corps, found themselves in reduced regimental positions, or unemployed for an indefinite time. The questions resulting from such cases as these, and from others arising out of the exceptional emergencies of 1857–58, have raised difficult problems, and made it impossible in many instances to harmonise the interests of individual officers with the well being of regiments, and have contributed in no small degree to create the difficulties and anomalies now complained of.

18. The admission of young officers to the Staff Corps was checked by the orders of Government, which prohibited the nomination of candidates for the Indian army to any but permanent vacancies in Native regiments, and as a result the number of subaltern officers fell below the just proportions; since however this prohibition has been removed, a steady flow of admissions has taken place, and there seems no reason to anticipate any difficulty in keeping up a constant supply of young officers for the Staff Corps.

G. G. O. 847 of 1865.
G. G. O. 933 of 1865.
Mily. Dept. letter 706 of 17th April 1867. (G. O. 95 of 1867.)
G. O. 34 of 1875.

19. The system of selecting officers for the civil departments of the army and for civil and political employment must to a certain extent work detrimentally to the interests and efficiency of the army; but the evil has not been so much felt of late, as, on the urgent representations of the Commander-in-Chief, the demands for officers have diminished.

Question V.—Does the present system of selecting officers for staff or civil employment work detrimentally to the efficiency of the army? What number of officers have been actually taken for the army departments, and for civil and political employ, in each year during the last five years? And how many have been returned from such employ to military duty?

20. The second wing subalterns were provided as a reserve to furnish officers for civil employ, and besides these there have been a considerable number of unemployed officers,* many of whom were still efficient and some with special aptitude for, or experience in, civil duties. But it was not from these last that selections were usually made, and at one time the admission of young officers to regiments had almost ceased. It was the adjutant or quartermaster, or the young captain, that was applied for, and the establishment of six officers, though enough for regimental requirements, could not bear the strain caused by the continuance of the old system of withdrawing officers whenever they were required for civil employment. This system involves a frequent change of officers in

* Every effort has been made to find regimental employ for the unemployed officers, but there are some for whom it was not possible.

No assistance has been given towards their employment by the non-combatant departments of the Army. The only extra regimental instances of relief to the list have been given from the patronage at the disposal of the Governor-General,

regiments, and is particularly detrimental at a time when the changes in military tactics place the utmost strain on officers and men.

21. It has been urged that the regimental officer who passes into general employment acquires qualities of usefulness, improved judgment, and broad experience in varied duties, which he brings back to the benefit of the regimental service. Though there may be instances in which this assertion has proved correct, what is generally the case? The officer rises to much higher allowances than he would receive in his regiment, his way of living is probably more expensive, and he seldom returns to military duty unless he is unfortunate, or has some disagreement with superiors, or because he has obtained promotion in military rank which he considers renders it derogatory to him to continue in his civil appointment, or because he is not fit for the higher branches of civil employment. The instances in which the officer returns with the supposed experience, and becomes a good regimental officer again, are very rare.

22. In considering this question it is useful to revert to the old organization of the Native army, and to the opinions of distinguished officers regarding it, both antecedent to the mutiny and during the inquiries which followed it. The opinions of Sir E. Paget in 1826 and Sir Henry Henry Fane in 1836 were supported by those of Sir Patrick Grant in 1858, Sir W. Mansfield in 1869, and the present Commander-in-Chief in 1870.

Appendix C.

23. The description of the Bengal Native army in 1826, given by Sir Edward Paget, is no doubt very exaggerated, and his opinions are evidently embittered by the events of the mutiny of the 47th Bengal Native infantry, and the recriminations which it led to; but making every allowance for these considerations, his account cannot be read by the light of subsequent events without giving rise to the most serious reflections, when a return to the system that he condemns is advocated.

24. It was nearly impossible that much *esprit de corps* or attachment to regimental duty could be retained, when selection for civil or semi-military employment carried away a large portion of the officers, many of them the most cultivated and efficient. Those who remained, doing regimental duty, saw their comrades rapidly rising to emoluments which they could never hope for in their regimental career, and knew that, in case of military service, the absent officers would return, possibly to gather the military rewards which were more justly due to those by whom the troops were trained in peace time. What could be more detrimental to a regiment than the return to the command of it, for the day of battle, of an officer who had been absent for years in civil employ, or in the Clothing, Judge Advocate General's, or the Pay or Postal departments; and that this is no exaggeration of what has taken place, numerous instances could testify.

25. One of the objects of the present organization was to remove these evils, and diminish the temptation to seek civil employ, by more nearly assimilating the allowances of regimental officers to those of the civil appointments in their earlier stages. To do this it was necessary to reduce the number of the regimental officers and increase their responsibilities. It is notorious that the duties of a Native regiment under the old system did not afford occupation sufficient for its establishment of officers. The inspection reports now prove that the existing establishment of a regiment, when complete, notwithstanding past and present disadvantages, is sufficient for the efficient performance of its duties.

26. There can, however, be no doubt that the general administration of the country is benefited by the employment of soldiers in civil and political duties. There are situations for which their military training renders them better adapted, as a rule, than civilians. The names of many eminent men, Lawrence, Edwardes, Nicholson, in our own times, stand prominently forward as examples; but they left their military duty as subalterns, and though they exercised high military command, they never returned at any time to regimental duty. The prospect of such careers must act as an incentive to noble exertion. It is not contended that officers should not be taken from regiments for non-military duties, but they should not be taken when the military authorities declare that they cannot well be spared. They should be taken from the legitimate reserve provided for the purpose, and not from the higher grades, except in special cases, when absolutely and imperatively necessary for the public services. It will be impossible to preserve regimental efficiency, if the smartest and best officers are taken just when they have become most useful and necessary to their regiments.

27. Returns accompany showing the number of officers taken from regiments for civil or army departments, and those returned to regimental duty from such departments, during the five years ending 31st December 1874 (Appendices D. and E.).

28. The necessity for extending to all purely military staff appointments the system of permitting an officer so employed to retain a lien on his regimental position, with all its attendant advantages, is intimately connected with any scheme of regimental promotion in the Indian army, and must be adopted as a component part of the plan. The advantages of such a system are, that the field for the selection for these appointments is widened; all difficulty as to the disposal of an officer at the termination of his period of staff service is avoided; the connexion between the staff and regiments is preserved; and the opportunities of more varied experience, gained by service on the staff, is afforded to a larger proportion of officers. An officer so detached should be required, during his absence, to continue his subscriptions to the mess and band funds of his regiment, and thus afford those institutions an assistance greatly needed in Native corps.

Question V.—Could the system of seconding be extended with advantage to all military staff appointments?

29. On the general adoption of a system such as that referred to above, the tenure of staff employment should be reduced from five to three years, for all staff appointments under the Commander-in-Chief, except the command of divisions and brigades, the heads and deputies of the Adjutant-General's and Quartermaster-General's departments, and personal staff. The rule in force in the British army, that, after the completion of a tour of staff service, an officer must rejoin his regiment and do duty with it for two years before being again similarly employed, should be made applicable to all regimental officers of the Indian army hereafter to be employed on the staff. Regimental officers

H.M. regulations, sec. 5, para. 61.

who remain on the staff longer than three years should forfeit their claim to retain a lien on their regimental positions.

30. The present tenure of staff employment in the Adjutant-General's and Quartermaster-General's departments, of five years, is too long a period to be absent from regimental duty with a Native regiment, both as regards the peculiarities of the Native soldiers and the claim which will have grown up of the officiating officer who would be displaced on the return of the officer from the staff. Five years form a very considerable period of regimental life, at the time when an officer would be selected for staff duty, and there is a risk of his returning less cordially to regimental duty than after a shorter absence, and also a greater probability that he may have risen to a higher grade for which his training will have been so long interrupted.

31. The objections made to this reduction of the term of office are that it does not allow time to train officers in their duties, and retain them for a sufficiently long period of their service to repay their departments for the labour of teaching them; in fact, that an officer will only have become thoroughly efficient in his duties when the time for relinquishing them to an inexperienced man will be near at hand; and secondly, that the short period of his tenure of office will not reimburse an officer for the extra expenses of uniform and chargers that he will incur.

32. To the first objection it may be replied that the military education that young officers are now obliged to undergo—secured by the garrison classes, and the provisions of G. O. 275 of 1873—must ensure a greater proficiency than was formerly exacted from officers on entering the army departments. The officer after his garrison course is perfectly able to take up the professional duties of the junior branches of the Quartermaster-General's department, and has only to learn the ordinary routine, which is acquired by an intelligent officer in a very short time, and often has to be performed by regimental officers temporarily employed in the absence of officers of the Adjutant-General's or Quartermaster-General's departments. It is not too much to say that there is hardly a regiment of cavalry or infantry of the British or Indian services in this Presidency, from which three or four officers could not be selected who would be able to make a fair survey or reconnaissance of a line of country off hand.

33. In reply to the second objection, it may be said that it applies to England and not to India. The brigade majors who are permitted to retain their appointments are excused from any change of uniform except "parade undress" and mess dress. They are allowed to wear the uniform of their regiments when full dress is required. The staff salary drawn in India, during three years, by the Deputy Assistant Quartermaster-General, is Rs. 14,400; by the Deputy Assistant Adjutant-General, Rs. 18,000; by the Assistant Quartermaster-General, Rs. 18,000; and by the Assistant Adjutant-General, Rs. 18,000, clear of all deductions, and in addition to their Staff Corps pay; or in the case of Deputy Assistant Quartermasters-General, supposing them to be squadron or wing officers, Rs. 6,840 and Rs. 6,720 respectively, in addition to what they would have received with their regiments. As every officer in India keeps some kind of horse, and all officers in the Native infantry are mounted, the expense of chargers, in their case, is not entirely additional. Cavalry officers go to their appointments provided with chargers.

34. The limit of three years' absence with retention of appointment, which has been fixed for absence on furlough, appears, in the interest of the army and regiments, the best for military staff appointments.

35. The Commander-in-Chief does not consider it necessary to recommend any changes in the rules under which officers employed in the civil departments of the army and in civil and political employ attain promotion.

Question V.—Should any change be made in the present rules as to the promotion in military rank of officers employed in the civil departments of the army or in civil and political appointments?

Is it desirable to make any change in the way in which the Commissariat and Army Pay Departments are filled?

36. As representatives of the Commissariat, Pay, and Survey departments must always accompany an army in the field, it seems most desirable that these departments should preserve in peace the military element of organization which is best suited for war, and be composed of officers accustomed to military control and subject to military law, rather than of civilians on whom it is necessary to confer relative military rank to secure to them that respect and position which is indispensable in carrying on their duties in correspondence with the various military departments. No change therefore is advocated in the method by which the Commissarait, Pay, and Survey departments are now officered.

37. This question is one that elicits very strong and very opposite opinions. The Commander-in-Chief is not prepared to recommend any increase to the number of British officers now sanctioned for the Native regiments. It is essential that all direct interference with Native officers in the command of their troops and companies should, as far as possible, be avoided, and the result of increasing the British officers beyond the number which is absolutely necessary in peace and war, would be to reduce Native officers to the position they held in the old Native army.

Question VI.—Is the present complement of British officers sufficient for Native regiments in peace and war?

38. Officers who have served with success with regiments on what is called the old irregular system—that is, having three officers, "a commandant, a second in command, and an adjutant"—are often still strongly in favour of this organization, in preference to any increase in the number of British officers. They have full reliance on the ability of their Native officers; they have been obliged to trust much to them, to rely on their courage and address on detached duty, to consult them on all regimental matters relating to the internal economy, the feelings of the men, and the general welfare of the regiment. At stated periods the European and Native officers have a meeting, called a durbar, at which all regimental matters are settled. Attendance at these meetings is greatly prized by the Native officers, who have free access to the commanding officer. The management of the regimental funds is entrusted to the native officers, under the supervision of one of the British officers, and the general control of the commandant. In a regiment where there is a proper understanding between the European and Native officers, no measure of importance to the regiment is undertaken, without first communicating it to the Native officers.

39. In addition to this confidential treatment, the pay of the Native officers of the irregular cavalry was greater than that of the infantry. Men of better condition than that of the infantry soldier were willing to enter the ranks of the irregular cavalry, where they were able to keep a servant to groom their horses and clean their accoutrements; if possessed of some means they were allowed to have bargheers; that is, they supplied horses, and found riders for them, who were sometimes dependants, sometimes relations. The pay of the complete soldier was divided in recognised proportions between the owner and the rider of the horse. This arrangement had its advantages in the early days of our Native cavalry, but the disadvantages proved so much greater, that it has been almost entirely abandoned.

40. Men of the better classes, who would accept employment in the irregular cavalry, would not enter the regular cavalry, because of the more rigid discipline, and the stable duties which the regular soldier was bound to perform.

41. The regular Native cavalry had the full complement of officers; the men were, in many instances, the very same material that formed a large portion of the irregular cavalry, though they were not of the best class which entered the irregular regiments. But whether the imitation of European discipline and regimental economy did not suit them, or whether the pure seniority system, and the retention of the Native officers in the real position of non-commissioned officers, instead of the more trusted and distinguished position of the officers of irregular cavalry, caused the inferiority, his Excellency thinks there is no one who knew both who would not admit the superior utility of the irregular cavalry, although there were, occasionally, brilliant exceptions where the regulars behaved most gallantly, such as at Sitabuldi.

42. When there were but a few regiments of irregular cavalry, the supply of well-to-do men was sufficient to fill vacancies, but as the number of regiments was largely increased, many men were admitted who would not originally have been received, and the material assimilated more nearly to that of the regular corps. The quality of the later-raised irregular cavalry no longer continued so good as it was in the original regiments; both men and horses had deteriorated previous to the mutiny.

43. The services performed by the irregular corps show that the Native officer was capable of giving a brilliant example to his men, and inspiring them with confidence in his leading. The records of the Sindh horse contain examples of heroic gallantry, and endurance of Native troops and detachment leaders, which would have done honour to any European. It would be most unjust to assert that instances of heroism were not to be found in the regular regiments; but, as a rule, they were not displayed in the manner that distinguished the irregular service.

44. In the regular service promotion by seniority was rigidly maintained, and was regarded, both by officers and men, as a right. The Native officer had no authority, and but little influence, except when it was of a religious nature, a power tempting to favouritism in a regiment of mixed races. He was superseded, in even the details of the command of his company, not only by the youngest cornet ensign who had all his drill to learn, but by the serjeant-major. He was too old, when promoted, to acquire habits of command, even had his position given him the opportunity. How could such training bring forward men fit to command companies? The only wonder is, that there were exceptions to the general condition of inefficiency.

45. Although the old regular army had, nominally, a complement of 24 British officers, so many were permitted to be absent on miscellaneous staff duty, in addition to the absentees on leave or furlough, that the first battles of the Sutlej and Punjab campaigns were fought by the Native infantry with an average of from 14 to 15 officers per regiment, and this number was raised only to 17 by the subsequent rejoining of the absentees. The average present at the opening of these campaigns in the regular cavalry was 12·165, raised to 14·165 by the return of absentees. The irregular troops never had more than three officers. The regular regiments had many comforts, good messes, and bands; there was a considerable regimental society, and easy duty. In the regiments in which there were many absentees, two or even sometimes three companies of infantry fell to the charge of one officer, and he received the command allowance of all of them.

Appendices K. L.

46. It is very natural that officers accustomed to such a system should bitterly regret a change to a much smaller society, in which the maintenance of a good mess requires some effort and self-denial on the part of all, but especially the seniors, to a heavier but wholesome amount of duty; and, too often, the absence of a band, the great comfort of which in war or sickness, and its value in the social relations of regiments are felt by all, especially at single corps stations. There is, also, in the present organization, the pressure exercised to ensure industry and attention to duty as the price of promotion, which must be very unwelcome to those who would prefer the system in which nothing could arrest the promotion of an officer while he continued a member of the service, whatever his conduct might be.

47. Officers trained in the old regular system can seldom have felt the valuable support of strong Native officers accustomed to responsibility and confident in their positions, and not a few honestly disbelieve in the possibility of making such aids out of their Native officers. Yet the material which under the one system has risen to the high position held by the Native officers in the Guides, the Sind Horse, the Punjab Frontier Force, and the old Irregular Cavalry, is in many instances the very same which in the other grew into the respectable but inefficient Native officer of the regular army. The 2nd Bengal Light Cavalry was disbanded for disgracefully abandoning its officers at Purwandurrah, in Affghanistan, yet nine or ten of that very regiment, taken into the Frontier Force, have rendered very gallant service, and it is stated that most if not all of them have risen to the highest grades, or have died in action. Many men of the Hindustani race, originally in our regular army, have become highly distinguished under other circumstances calculated to bring them forward.

48. The present organization was devised, firstly, to counteract in some degree the temptation to leave regimental duty for other employment, by equalizing the military allowances with those obtainable in the early stages of civil or quasi-military employ. Secondly, to provide

Question VI.—Is the present complement of British officers sufficient for Native regiments in peace and war?

for each British officer a sufficient and positive duty which would involve direct responsibility, and would ensure his attention, or bring his inefficiency to notice. Thirdly, to leave room for the Native officer to have such distinct authority and responsibility as would place him under the same pressure with the British officer to perform his duty efficiently. Lastly, because on the ground of economy the increase in the pay of the officers rendered a diminution of their number necessary. Its intention was that the promotion of British officers should depend on efficiency, while that of the native officers and non-commissioned officers should be made by selection, and not be bound by any claim of seniority.

49. That this system has answered better than the old one may be fairly asserted,—firstly, on the ground of the greater efficiency which may be claimed for the regiments under the present, over those under the old organization. Secondly, from the achievements of these regiments in the field. And thirdly, from their obedience.

50. There could be no question now of any regiment refusing to perform pioneer or sapper work when necessary, not merely in sieges, but at any time in the field; or going on foreign service when required. This could not have been said of the old regular Bengal regiments. Instances of their refusing to work in the field, and objecting to proceed on foreign service, are matters of history.

51. The present organization holds an intermediate position between the extreme views of the advocates of the pure irregular system, and of those who would restore the old regular army. The system has not attained the perfection of which it is believed to be capable, because the course of its original design has been interrupted by several unfavourable circumstances, and because the growth and maturity of a radically new system in a large army must be a work of time. Some of the original rules, intended to secure a due flow of promotion, threw officers out of their regimental places; other officers became unemployed owing to the reduction of their regiments, or the termination of their tour of staff employment.

52. The removal of officers for miscellaneous staff employment, and their return to military duty, increased the number whom, under the orders of the Government of India, it was incumbent on the Commander-in-Chief to replace in regimental duty wherever vacancies could be found. Thus, while under this necessity for interpolating officers, there was no security for any regular promotion in regiments, the Sepoys were placed in the condition that has always been held to be most unfavourable for securing their attachment and fidelity, that of a constant change of officers.*

53. One commanding officer represented that his regiment, with a complement of seven, had had 75 officers in it in 10 years; another, that 50 officers had been in his regiment in the same period. This gave rise to a very unsettled feeling among the officers. Many officers, as their rank rendered them eligible to fill a higher grade than that which they were holding, looked round to every regiment to find some vacant appointments for which they could apply, and considered it a grievance that they were not selected for them, notwithstanding the claims of those who had long continued in uninterrupted service in their own regiments.

54. In addition to these disadvantages, some of the officers, who had been brought up in the regular regiments, and whose ideas had not been altered by serving in the irregular, or in the newly-formed corps, still adhered to promotion, in the Native commissioned and non-commissioned grades, by rigid seniority. In many cases the service and good conduct of Native commissioned and non-commissioned officers, rendered it very hard to pass them over, and disappoint hopes which had legitimately grown up in the old service. The system of raising the Native officers to their proper positions, as commanders of troops and companies, could only come into full operation gradually in those regiments where there were many old and deserving Native officers who had never been taught to exercise any authority or responsibility.

55. Notwithstanding these obstacles a very great advance has been made in the right direction. Experience has led to the alteration of many rules which acted injuriously on the regimental system, and threw comparatively young officers out of the corps to which they had belonged and become attached.

56. The spirit of the new organization has been cordially adopted in the frontier force, in the regiments raised on the foundations of irregular corps, and in the majority of the regiments raised since the mutiny.

57. The superior position given to the Native officers, and the efficiency required of them in drill and discipline, have developed and improved their capacity. No impartial observer, who knows what the old army was, and what the present one is, can hesitate for a moment to pronounce the regiments of the present day greatly superior to those of the old army; better drilled and disciplined, more obedient, less fettered by assumptions of religious restraint, more moveable, and more ready for every service. The annexed abstracts of the opinions of inspecting general officers, both of the British and Indian service, for the last three years, will testify to the present high state of the discipline and efficiency of regiments, and to the remarkable degree of professional knowledge and zeal displayed by the officers in their regimental duties. Appendix S.

58. The results in war of the two systems may safely be compared; the one which obtained from the commencement of our Native army in India up to 1796; from the annexation of the Punjab and Sind as regards the frontier and special Sikh corps; and from the mutiny to the present time as regards the rest of the army, in which the smaller number of British officers has rendered it necessary to trust to the Native officers, and to place them in command of troops or companies; and the system prevailing between 1796 and 1857, in which the full complement of British officers was nominally present, and the Native officers were the production of strict seniority and want of responsible employment.

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* In addition to such officers as it was possible to restore to regimental duty, there were a considerable number for whom, owing to their age, rank, or long absence from military or regimental duty, or other cause, it was impossible to find employment.

Their claims to the favourable consideration of the Government of India were represented in Lord Napier of Magdala's Minute, dated 26th October 1871.

Appendix I.

59. The establishments of regiments in 1757 consisted of three European officers to 890 Natives of all ranks. From 1757 to 1796 the complement never exceeded five European officers with 585 men. The present complement is seven officers to 712 Natives of all ranks, or about one officer to every 100 men, which is not very far short of the average number that went into the Sutlej and Punjab campaigns in 1845 and 1848, or one officer to every 80 men.

60. The army during its first period of existence, previous to 1796, distinguished itself at Plassey, Buxar, Kotah, and the campaigns in Guzerat, the Carnatic, and Mysore, and especially so at the defeat of the Dutch near Chinsurah; the escalade of the almost inaccessible fortress of Gwalior by Popham, an achievement second only to the escalade of the Castle of Badajos; the defeat of Mahadjee Sindia by Camac, and the expeditions of General Goddard and Colonel Pearse to the west of India, with Native troops alone. In later times the 1st Bombay Grenadiers, at Corrygaum, when the Peshwa's army was driven off, had but four British officers. The Khelat-i-gilzee regiment had but three officers in Affghanistan. A regiment of Sind Horse under Malcolm, with one other officer, defeated the Affghans at the battle of Guzerat, in the only charge made on that day.

61. Since the annexation of Sind and the Punjab, the numerous actions of the Sind Horse, the Punjab Frontier Force; the conduct of regiments under the new organization at Umbeyla, where Brownlow's corps, then the 8th Punjab Native Infantry, held the "Craig piquet" during the greater part of a night of fierce assault, their relieving force consisting partly of Europeans, being subsequently driven out; the conduct of the Native troops in the storming of Bala and Chamoorchi; the behaviour of the Sirmoor battalion and the Guides at Sobraon and Delhi: these and many other instances which might be cited, prove conclusively that at least these battalions have shown no inferiority to the old regular Native army, either in peace or war.

62. No one can undervalue the presence of European officers in times of difficulty, but the question is, whether the whole machine of a Native regiment will not work better in action, if it has the springs and life within it of a large number of Native officers accustomed to exercise the authority and influence over their countrymen, which their real rank and position would give them, even with the smaller number of British officers who have always been with them, and who have trained them, than they would with Native officers without habits of command or influence, and with a larger proportion of British officers, some of whom would have come from civil pursuits at the last moment, and would be strangers at least to the younger part of the regiment.

63. The question was asked, and answered, 58 years ago by Captain Williams, who had written the history of the early Bengal regiments, and was acquainted with the army before and after 1796. In 1817 he wrote—"It may be further observed that in times past the Native commissioned officers, especially the subadars at the head of companies, possessed more authority and influence than they now do with their respective companies, in proportion as they were more employed instead of European officers." "This consequence has further resulted from the change in the interior economy of the corps, by which the more immediate interference in the control and management of the companies is vested in the hands of the European officers by whom they are now commanded and paid. The routine duties of the pay and orderly havildars of companies have necessarily absorbed, in a material degree, the constant intercourse between the companies and the officers commanding them, of which the subadars and the Native adjutant were formerly the links of communication with the officer commanding the battalion; and herein perhaps has arisen a degree of apathy and indifference on the part of the Native officers, especially those who have attained the highest rank, which may more or less pervade the whole machine by the baneful influence of example."

64. The advantages of maintaining throughout all the regiments of an army, one organization and one system, render it most desirable that the number of officers with each corps should be identical, so that the possibility of any want of unison and harmony between the component parts of the same body may be avoided.

Question VI.—Is it desirable that the number of British officers should be the same in all regiments, or would it be convenient to have different systems?
In time of war, how would the wants of regiments from losses in the field be supplied?

65. The Native armies under the Commanders-in-Chief, together with the Punjab frontier, Hyderabad, Central India, and Rajpootana corps, form a force of the line, exclusive of the sappers and miners, of 43 regiments of cavalry, with 280 officers; and 144 regiments of infantry, with 965 officers; giving a total of 1,245 officers as the establishment for the line regiments. The reserve to meet casualties consists of the following:—The probationers for the Staff Corps in excess of the regimental establishments, being officers appointed to fill the vacancies of absentees on leave, at, say one for every battalion excluding local corps, 135. The officers in miscellaneous civil employ under the rank of lieutenant-colonel, 360. Officers unemployed and fit for employment, 25. These several reserves make up a total of 520 officers as a reserve for 1,245; or supposing from one cause or another one-fourth of the reserve not to be available, there would still remain 390 officers, or more than 25 per cent., or more than two additional officers for every regiment of the three Presidencies. But the whole of the army would not be in the field at once; a portion must be available for holding the country, and this portion would not require the full complement of officers: each regiment having seven officers they could easily spare two or three officers on emergency. If we assume that one-third of the army, or 62 regiments, must remain in reserve, the reserve regiments could contribute at least two or possibly three officers per regiment, which would furnish a mean number of 145 officers to reinforce the regiments in the field. Thus, over 545 officers would be avaialble to reinforce the regiments in the field, and to provide for field establishments and an expansion of the army.

66. It may be said that by taking away the officers in civil employ the civil administration would be paralysed; but in every service there are assistants who would on emergency supply the places of their superiors, and it will be observed that all officers above the rank of lieutenant-colonel have been entirely excluded from this calculation. All officers in miscellaneous staff employ under the old system would have been held liable to join their regiments on service and

therefore must be counted in the comparison of the two systems of the army. The valuable memorandum by Major-General Sir H. Norman, dated 18th September 1869, shows that in the worst campaigns that we have had during the last 60 years, the loss in officers has not exceeded an average of one and a half per regiment—

"Can we want more reserve than that detailed above? I think not, for what have been our casualties in former wars?

"In the battle of Moodkee, with the Body Guard, two light cavalry regiments, one of irregular cavalry, and eight regular Native infantry regiments, three officers were killed, one dangerously and four severely wounded.

"At Ferozeshah, with the Body Guard, three regiments of regular cavalry, two of irregular, and fourteen regiments of Native infantry, six officers were killed, and ten severely wounded.

"At Alliwall, with the Body Guard, three regiments of regular cavalry, two of irregular, five regular regiments of Native infantry and two Goorkha regiments, three officers were severely and one dangerously wounded, and one killed.

"And at Sobraon with the Body Guard, three regiments of regular cavalry, two and a half of irregular cavalry, ten regiments of regular infantry, and two Goorkha battalions, there were two officers killed, and twelve severely wounded.

"Thus there were in the whole Sutledge campaign—one of the most bloody and hard-fought campaigns of the present century in India—twelve officers of Native troops killed, two dangerously and 29 severely wounded, or 40 put really *hors de combat;* but as this includes the loss in every corps, and, as is always the case, few regiments were in all the actions, and some were never engaged at all, and were only coming up in reserve, this represents the loss of European officers in the whole Native army of the Sutledge, or in the Body Guard, seven regiments regular cavalry, five and half regiments of irregular cavalry, 26 regiments of regular infantry, and two Goorkha battalions, very little over *one officer* per *regiment.*

"In the Punjab campaign under Lord Gough, that is at Ramnuggur, Sadoolapore, Chillanwallah, and Goojerat, a total force engaged or immediate reserve amounting in all to four regiments of regular cavalry, four of irregular cavalry, and 17 regiments of regular Native infantry had six officers killed and 30 severely wounded, or about one and a half officers per regiment.

"In those campaigns it is to be recollected that the officers were more numerous, as compared to men than they now would be, but as it may be alleged that officers would now have to expose themselves more, being all mounted,* I will not press this argument, but I will maintain that if we had an arduous campaign with the unprecedented number of 50 Native regiments engaged in it, it would be very remarkable if our casualties, even with sickness added, ever reached the figure of a hundred; but if the casualties reached that figure, or twice that figure, or thrice that figure, we should be able to supply the drain. If it got beyond that I doubt there being many men left for whom officers would be needed.

"The Mutiny is often urged as an instance of the danger of having few officers with regiments. The Mutiny it is true broke down the old system. If a regiment mutinied, it was rather an advantage than otherwise to have few officers murdered, but the regiments that were most actively and devotedly loyal were, with perhaps one exception, such as had originally only three or four officers, as the Sirmoor battalion, Ferozepore regiment, Guides, 1st Punjab Infantry, &c.

"In these corps, however, the casualties are said to have been so heavy that the unsoundness of a system of few officers was apparent. What is the truth? Doubtless, where but one or two Native regiments were present in one large army and very freely used, the casualties were great; but, after all, throughout the siege of Delhi, a force of corps or detachments of Native troops equal to nine and a half regiments, all of whom were at the crowning event of the capture, had 11 officers killed and 14 severely and dangerously wounded, or something like two and half per regiment—a very uncommon proportion; but we do not often see fighting like this in India, and it was a loss we should find no difficulty in replacing with so few regiments engaged. With more regiments, probably opposition would have been less and shorter.

"Again, Umbeylah is instanced as a case where the new organization was tried and failed. This is simply not the fact. A reference to facts will show that the new organization was only ordered by Government in October 1863, actually after the assembly of the Umbeylah force. The Native corps that went to Umbeylah, therefore, were still on the old irregular system with perhaps one or two extra subalterns attached. The system of having wings and squadrons commanded by responsible European officers had been in no way brought into play.

"I would observe, however, that Umbeylah was a very severely contested campaign, and that we did what is always likely to lead to trouble, if not disaster, on the north-western frontier, advanced into the hills and remained there, inviting the attack of warlike tribes.

"But notwithstanding all this, what were the casualties in the Native troops, which, I may observe were very prominently put forward, and which constituted the large majority of the force. In the Guide cavalry and 11th Bengal cavalry which were up during the first few days, and at the last advance no European officer was killed or severely wounded. In the Native infantry, of which seven regiments went up at first, two immediately followed, and three were added before the final operations took place, our losses were five officers killed, one dangerously and six severely wounded, 12 in all, or an average of one per regiment. Was this a loss that it would have been difficult to supply?"

We may therefore feel secure in possessing an ample reserve, and as the whole number of officers therein treated of amounts to 1,765 out of a total of 2,608 on the strength of the army, as shown in the returns of the three Presidencies in the Army Lists, dated 1st July 1875, it is clear

*NOTE.—The orders now require all officers to dismount on coming within the zone of effective musketry fire.

that there is a further number of 843, of which no account has been taken and which includes officers employed in the Army Staff departments.

67. Although many officers of experience advocate the formation of the whole army into purely class regiments, the Commander-in-Chief is satisfied that the opinion arrived at in 1864, by the able and distinguished officers who then most carefully considered this question, was correct, and that the proportions then recommended, of class regiments, class company regiments, and regiments in which all races are mixed without any classification, are on the whole the most expedient. In Appendix M. will be found a précis of the correspondence which took place with Government on the subject of the re-organization of the present Native army.

Question VII.—Is any alteration in the organization of Native regiments desirable, in order to ensure a more efficient supervision by the British officers?

Appendix M.

68. It may readily be allowed that a greater *esprit de corps* is developed in a class regiment than in one composed of various nationalities, as is happily illustrated in the Goorkha battalions, and in the Muzbi and Sikh regiments; but it can by no means be asserted that those corps have surpassed on service some of the class company regiments, such as the Guides and 1st Punjab Infantry, and 12th, 19th, and 20th regiments of the Native army. On the other hand, the mixture of races in regiments relieves the State from the anxiety which might result from the knowledge that an essentially class corps was at some distance from other regiments and exposed to the temptation of fraternising with its own countrymen, among whom in the course of duty it might be stationed.

69. If, however, any alteration from the division of a regiment into companies, consisting of and not exceeding about 100 men, as now existing in the British army, is suggested, no such alteration is recommended. The company unit has been found most convenient in all ages since disciplined armies have been formed, and it would be certainly wiser to follow and not to go in advance of her Majesty's British army in so radical a change. Any formation, such as linking of companies, may be adopted in the course of drill and field exercises, for tactical convenience, but any thing which would diminish the flexibility of regiments would not be so convenient, under all circumstances, as the present formation.

70. If the question refers to plans of forming regiments of two or more battalions, and of localising one of the battalions, or the whole regiment, within certain territorial limits, such an organization is not recommended. The reason for which it has been advocated is, to form a sufficient cadre of officers to equalise regimental promotion. The regular gradation of rank in the Staff Corps equalises substantive promotion; the promotion from one battalion of a regiment to another would be in reality the same as the promotion from one distinct regiment to another, and would involve the evil of frequent changes of officers in battalions, which is condemned by all experience of the Native army, and would be nearly, if not quite, as injurious if the battalions belonged to one regiment or were independent of each other. The duty required of the Native army and the extent of country over which it is spread, would prevent the several battalions of a regiment ever being much together, even were such desirable; but it would be contrary to our policy to promote an union of feeling and a common interest in so large a body as three regiments, because disaffection, which is the greatest evil we have to guard against, in any one portion would be certain to pervade the whole.

Appendix N. Lord Sandhurst's opinion adverse to localisation.

71. Neither would it be convenient to localise any considerable portion of the Native army. In case of any local religious or political excitement in the population of their district, they would be liable to share in or sympathise with it, or, what would be the next evil, the local authorities would be apprehensive of such a result. Localisation means more or less of deterioration or loss of mobility. Local corps soon get impatient if detained long from their head-quarters.

72. Goorkha regiments are localised on account of climate, but they require to be brought from their stations to be brigaded with other troops. There are political as well as sanitary advantages in their isolation; they are foreigners in the districts in which they are placed, and in which there is no population liable to excitement or with which they would fraternise.

73. The supervision of British officers under the present organization is as complete as is necessary. Each infantry regiment has its commanding officer, and an adjutant, and a quartermaster to assist him in directing the manœuvres of the regiment in action, or on parade, and for conducting its general administrative duties. Each wing has its commandant under the name of wing officer, who holds a position resembling that of the major of a British regiment, but with much more direct reponsibility for the supervision of the officers commanding companies than is usually vested in the major of a British regiment.

Question VII.—Is any alteration in the organization of Native regiments desirable, in order to ensure a more efficient supervision by the British officers?

74. The wing officer has to exercise a general supervision over the Native officers commanding companies, carrying out the duties of discipline and instruction through them; seeing that they do their duty properly, but not taking it out of their hands, or in any way failing to uphold their position and authority over their companies.

75. In the Native cavalry the commanding officer has an adjutant to assist him, and one of the squadron subalterns does the duty of quartermaster. The squadron officer, holding a similar position to the French *chef d'escadron*, commands his squadron in the same way as the wing officer in the infantry, maintaining the authority of the Native commanders of troops while carrying out the duty through them. The squadron and wing subalterns are employed under the orders of the commanding officer in general duties, such as musketry, &c., or in assisting the squadron and wing officers. They are thoroughly taught the elementary part of their duty previous to joining Native corps, and therefore have only to learn the higher duties fitting them to fill any vacancies in the superior grades.

76. Considering the nature of the Native army; that we have to retain the executive control of a regiment, and yet to afford some room for the Native soldier to aspire to a higher and more respectable position, and to hold out some reward for the more loyal, brave, and intelligent,

something to satisfy their *amour propre*, which is so strong, and, properly used, so valuable an element in their character—considering these points, it does not appear that we can better meet the peculiar demand of the present day by any change of organization.

77. In close connexion with the points discussed in the earlier paragraphs of this letter is the question of the advisability or otherwise of retaining the Staff Corps organization, as the medium for carrying on the army promotion of the officers of the Indian army. Various objections have been urged against the system of promotion inaugurated by those who devised the Staff Corps, but, after careful consideration, the Commander-in-Chief desires to express his opinion that when the difficulties caused by the undue proportion of senior officers, and by the existence of two other distinct lines of promotion, *i.e.*, in the local forces and the general list, have passed away, the Staff Corps organization will be found especially adapted to the peculiar requirements of Indian service.

78. The Staff Corps, in what may be termed its civil list, provides a reserve, such as the Government of India could not afford to maintain under other circumstances, of officers whose services could, on any great emergency, be made available with troops in the manner suggested in paragraph 22 of this letter. This is a matter of paramount importance and fully compensates anything that has been urged against the Staff Corps. The superabundance of superior officers is doubtless inconvenient and expensive, but this is a defect which is due to the peculiar circumstances under which the Staff Corps was formed, and not to any unsoundness inherent in the system. The rate of promotion in the Staff Corps is not excessive, and maintains a fair equality of advancement among all officers and in all grades, in a manner which could hardly be ensured by any system of regimental seniority.

79. The Staff Corps furnishes, exclusive of 252 officers in army departments, a reserve of 823 officers.

80. This reserve may be favourably compared to the half-pay list of the English army, which consists of 1,050 officers to a strength of 8,398 officers to all arms.

81. The English reserve is not necessarily employed. The half-pay officers as a rule do no duty for the State, though they may occupy themselves in civil pursuits; but the reserve officers of the Staff Corps are all actively employed for the State, on duties calculated to render them useful in many situations in war; while the younger portion, having been thoroughly instructed in their military elementary duty before entering miscellaneous staff employment, will after a period of training be able to return to the line when required, in the manner proposed in paragraphs 65–66.

82. The confidential reports of general officers in command of divisions and districts bear testimony to the general efficiency of the Native officers; to their ability to command their troops and companies; and the manner in which they perform their duties when on detached employment, and removed from the immediate control of their British officers, supports this opinion thoroughly.

Appendix S. Extracts Confidential Reports of *Regiments, 1873–74–75.*

Question VIII.—Are the present Native officers competent to command their troops and companies on all occasions, and is any improvement taking place in the men who are coming forward for advancement to the commissioned grade?

83. The Commander-in-Chief has seen the whole of the Bengal army, a single regiment excepted; nearly every regiment of the Bombay army; and a considerable portion of the army of Madras. Lord Napier of Magdala never lost an opportunity of testing the capacity of the Native officers, and, though there were of course exceptions, he found them generally well acquainted with their duties; many have shown their ability to manœuvre a battalion on parade; many are intimately acquainted with the field exercise book, and some have translated it into the vernacular. The Commander-in-Chief particularly noticed the intelligence and comparatively superior education of many Native commissioned and non-commissioned officers of the Bombay army.

84. The Native officers of the Bengal army showed during the famine a very high standard of intelligence, administrative ability, and integrity, which won the regard and esteem of the most capable judges—the civil authorities under whom they were employed.

85. The records of very many regiments show that Native officers of all classes have proved themselves thoroughly capable of commanding in the field not only troops and companies, but detachments, with distinguished gallantry and success.

86. There are degrees of efficiency among all soldiers, European as well as Native, according to their education, and the system under which they have been trained. It is reasonable to infer from the comparative efficiency of the Native soldier of every class under one set of circumstances, that failures under other conditions are due, not to the quality of the material, but to a system which promoted by seniority instead of by selection, and in which nothing more than the most mechanical military instruction was imparted; or to the remains of that system still dwelling in regiments, which were converted to an organization under circumstances most unfavourable to its reception. If the European officers disbelieve the possibility of their soldiers ever making efficient officers, the necessary qualities will never be sought or encouraged in making the first promotions.

87. After the formation of the Staff Corps, in the Madras army there were from ten to twelve officers remaining in regiments when the new organization was carried into effect, reducing the number of officers to six, throwing five or six officers of each corps out of their regiments, and practically out of their military home. There was no certainty for their future, and no prompt provision for the retirement of surplus officers.

88. The Bombay army was similarly treated, but being smaller and not having so many supernumerary officers owing to reductions, the regiments had more elasticity under the change than either the Madras or the old Bengal corps; this may also have been partly due to the system of promotion by selection and to some degree of education.

89. Such a complete revolution in an army could not fail to leave lasting traces. As long as officers remain whose views of the new organization are coloured by the circumstances above

mentioned, its progress must be slower than it has been in a new field. There is nothing in the military history of any of the Native armies of India to justify a belief that with fair opportunity the Native soldier is not capable of becoming an efficient troop or company commander under the careful selection, education, and training of his European officers.

90. Many of our most distinguished Native officers have been uneducated in school learning, but they had personally or traditionally the best education—that of constant practice in war. We have no longer that experience to draw upon to the same extent, and must substitute for it an education, suitable, but not beyond, the wants of the army; and efficient training. It is worthy of remark that the skirmishing style of fighting introduced by the weapons of the present day is very similar to that which has been the practice of the Natives of India, and especially of the hill tribes, who are adepts in it.

91. While maintaining the capabilities of the Native soldier, it would be dangerous to assume that nothing more is wanting. The pay of the private soldier should be not only sufficient to raise him above actual distress, but to ensure the service being again made attractive to the best material of the class suited to the army.

92. The attention to the practical military instruction of all ranks, which has been initiated in late years, should be steadily persevered in. The officers of the Indian army who have gained experience of war in the campaigns of 1838, 1845–46, 1848–49, and 1857–58, are disappearing, and the Native soldiers bred up in national or border warfare are year by year becoming more scarce. The new material of which the army is being composed requires, in the place of actual war, the constant practice which can only be given by the collection of large bodies of troops of all arms for manœuvres, in a varied country, such as is seldom available near our cantonments; by the training of the private soldiers in athletic bodily exercises, to replace their own declining system; and by giving such education as the recently established schools can impart.

93. More especially is it important that more thorough recognition should be accorded to the social position of Native officers, and that they should be entrusted with the responsibilities which fairly belong to their rank as commanders of troops and companies.

94. Native officers when proceeding on duty by railway should be permitted to travel first and not second class, as is now the case; and a special position in durbars, and on State occasions, should be assigned to those Native officers on whom the title of Sirdar Bahadoor, or the decorations of "British India" or the "Order of Merit" have been conferred.

95. The sources from which, and the method in which, the Native commissioned grades should be filled, are questions of vital importance to the welfare of the army. The Commander-in-Chief is of opinion that when men suitable for the higher grades can be found in the ranks of the regiment they should receive promotion; but that when the tone of the regiment requires elevation, or when the non-commissioned grades are unfit, the system of direct appointment of Native gentlemen of birth and position should be resorted to. When such a course becomes necessary, the senior of each grade, who might otherwise have expected promotion, should be removed from the regiment on a pension, equal to the highest amount attainable by length of service in the rank he then holds. By such compensation only can the hardship be mitigated, which the introduction of strangers into the commissioned grades of a regiment inflicts on all ranks. These observations do not apply to regiments that are composed mainly of particular classes or tribes, such as the 15th Bengal Cavalry (the Mooltani Horse), where the Native officers are the hereditary chiefs of the men.

96. The general superiority apparent in the Native officers of the cavalry over those of the infantry may in a great degree be attributed to the superior attractions held out by that service, in its higher rates of pay and the superior position consequent thereon. A comparison of these rates, which are placed in juxtaposition in the margin, will leave but little doubt on the subject, and support the proposal which the Commander-in-Chief desires to make, that the pay of the Native infantry officers shall be fixed at the following rates:—

Cavalry.			*Infantry.*		
Ressaldar 1st class	Rs.	300	1st class Subadar 2	Rs.	100
„ 2nd „	„	250	2nd „ 2	„	80
„ 3rd „	„	200	3rd „ 4	„	67
Ressaidar 1st „	„	150	Jemadar „ 4	„	35
„ 2nd „	„	135	„ „ 4	„	30
„ 3rd „	„	120			
Woordie Major „		150			
Jemadars 2 „		80			
„ 2 „		70			
„ 2 „		60			

1 Subadar major	-	-	-	Rs. 200
1 Subadar	-	-	-	„ 150
6 Subadars	-	-	-	„ 100
4 Jemadars	-	-	-	„ 60
4 „	-	-	-	„ 40

With such pay his Excellency believes that a very marked improvement would, in a very few years, be seen in the stamp of men officering the Native infantry regiments.

97. The pensions now granted to Native officers present a very striking contrast to their pay while serving, especially in the Native cavalry, and the smallness of the allowance operates prejudicially to the interests of the army, inasmuch as it encourages or even obliges the Native officers to continue serving after they have ceased to be efficient, while it affords to the mass of the people, from whom the recruits for the army must be drawn, the spectacle of an old and probably distinguished officer, who has served the British Government for a long term of years, dismissed to his home on a pittance which barely enables him to exist.

98. To remedy a state of affairs so hurtful to efficiency the Commander-in-Chief would propose, for the consideration of Government, the establishment of a fund from which each Native officer would receive a bonus corresponding with the amounts subscribed by him during his service. Some such scheme as this it is believed the Native officers of the army would gratefully accept, but should this proposal meet with approval, it would be advisable that all the details of the plan should be considered by a committee of Native officers.

99. A project of this nature would require most careful elaboration, but at present it is sufficient to state that it seems that a deduction of 5 per cent. per annum from the pay of all Native officers

coupled with interest at 5 per cent. per annum on the whole sum from Government, would supply a fund sufficient to meet all the demands which could be made on it, and would give to each Native officer on leaving the service a sum which, supplementing his pension, would secure him a competency for the remainder of his life.

100. To establish and preserve the efficiency of a mercenary army, and to secure its loyalty, it is necessary, while maintaining the strictest discipline, to bind the individual members of it to the Government they serve, by ties of self-interest and gratitude. The Commander-in-Chief being deeply impressed with the urgency and importance of the proposals contained in this letter, and of those contained in letters No. 2,837B. of 16th November 1874, and No. 1,482B. of 30th June 1875, copies annexed, feels it his duty to recommend them earnestly to the favourable consideration of the Government of India. Appendix R.

101. In conclusion, Lord Napier of Magdala invites attention to the opinion of the late Duke of Wellington on the danger to the British empire in India that would result from an amalgamation of the Native armies of the three Presidencies; a danger which, his Excellency believes, would be as great were such an amalgamation attempted in the present day, as it would have been when the opinion of the highest military authority on Indian affairs was pronounced. Appendix Q

I have, &c.
P. S. Lumsden, Major-General,
Adjutant-General in India.

List of Appendices.

The following documents are appended, in support or elucidation of the proposals or opinions contained in the preceding pages:—

Appendix A.

Proposed rules for regulating the regimental promotion of the European officers of Native corps.

Appendix B.

Return of cases of senior officers serving in regiments below their juniors in army rank.

Appendices C.

Contain the opinions of Sir Edward Paget, Sir Henry Fane, Sir Patrick Grant, Lord Sandhurst, and the present Commander-in-Chief, on the injury caused to regiments by the abstraction of regimental officers for miscellaneous staff employment.

Also Sir Patrick Grant's opinion that three European officers are sufficient for a Native corps.

Appendix D.

Return of officers taken from regiments for army, civil, and miscellaneous appointments under the civil Governments; showing that 83 officers were taken from regiments under the Commander-in-Chief during the five years ending 31st December 1874.

Appendix E.

Shows that 64 officers were returned to military duty under the Commander-in-Chief during the five years ending 31st December 1874.

Appendix F.

Nominal roll of the officers returned to military duty; from which it will be seen that 15 were remanded for inefficiency, three for misconduct, and the remainder because they resigned their appointments, in consequence of departmental supersession or other reasons.

Appendix G.

Opinion of the Commander-in-Chief on the difficulty of finding regimental employment for unemployed officers, dated 18th August 1873.

Appendix H.

Memorandum dated 15th March 1870, containing Lord Sandhurst's opinion against the localization of Native regiments; an opinion that was justified by the state of the Assam regiments, which have now been mobilised within their own province.

Appendix I.

Captain Williams' account, published in 1817, showing the effects of the organization, with the large complement of British officers (which obtained from 1796 to the Mutiny), in the deterioration of the Native army, and particularly of the Native officers.

Appendix J.

The description and distribution of the army in October 1826, showing a ratio of officers actually present with regiments of one European officer to 165 men.

Appendices K. and L.

Return of European officers present with Native regiments of Cavalry and Infantry in the Sutlej and Punjab campaigns; showing an average of one European officer to 80 men.

Appendix M.

Précis of correspondence on the reorganization of the Bengal Native army.

Appendix N.

Return of probationers for the several Staff Corps from 1st January 1870 to 31st May 1875.

Appendix O.

Return of officers now holding staff appointments, not having a lien on any regiment, who will become unemployed on the termination of their tour of staff duty.

Appendix P.

Statement showing the length of service of all the officers of every regiment of the armies of the three Presidencies; showing, from the great length of service of the commandants and seconds in command, the necessity for continuing the inducements to retire.

Appendix Q.

The strong opinion of the late Duke of Wellington on the danger that would result to the English empire in India from any amalgamation of the Native armies of the three Presidencies.

Appendix R.

Letters to Government* regarding the pay, invaliding, and pension, &c. of the Native army.

* No. 2837B, dated 16th November 1874.
„ 1482B, dated 30th June 1875.

Appendix S.

Opinions of general officers on the Native army, as taken from confidential inspection reports in 1873–74–75.

Appendix T.

Notes on the Native army of Bengal, its present material and organization as compared with the past, by Brigadier-General Brownlow.

Appendix U.

Extract from a letter from Major-General Blake commanding at Burmah, dated 30th July 1872, regarding Madras army.

Appendix V.

Return of actions in which Native officers commanding detachments of Sind Horse have been engaged.

Appendix W.

Return showing birthplace, religion, and tribe or caste of officers Sind Horse brigade who have commanded detachments in independent actions.

Appendix A.

Rules to regulate the Regimental Promotion of Officers of the Indian Army.

I. The establishments of regiments of Native cavalry and infantry shall be fixed as follows:—

Cavalry.

I. Commandant.
II. 2nd in Command and 1st Squadron Officer.
III. 2nd Squadron Officer.
IV. 3rd Squadron Officer.
V. Squadron Subaltern.
VI. do. do.
VII. do. do.

Infantry.

I. Commandant.
II. 2nd in Command.
III. Wing Officer.
IV. Subaltern.
V. do.
VI. do.
VII. do.

II. Regimental position constitutes seniority in all regimental duties, but when employed with mixed forces officers rank according to their standing in the army.

III. An officer on attaining the rank of colonel in the Staff Corps shall vacate his regimental appointment unless reappointed thereto, for a further term of five years, by the Commander-in-Chief.

IV. An officer of the local service shall vacate his regimental appointment on completing five years' service from the date of his attaining his substantive lieutenant-colonelcy, unless re-appointed by the Commander-in-Chief for a further term of five years. All officers on attaining colonels' allowances or the age of fifty-five years, must vacate regimental employment.

V. On the occurrence of a vacancy in a regiment created by the death, retirement on pension, or otherwise, or the relinquishment of regimental duty under the operation of Cl. III. and IV., the promotion in the several regimental positions shall be given to the senior officer of each lower grade, subject to the following exceptions:—

1*st.*—If the officer standing next for promotion be pronounced unfit or undeserving, by reason of professional unfitness or misconduct. The unfitness of an officer will, as a general rule, be determined by the reports of the regimental commanders and the inspecting general officers, with such further inquiry as the Commander-in-Chief may order.

2*nd.*—Should vacancies occur, simultaneously or within a very brief period, in the command and second in command of a regiment, one of them may be filled by an officer of suitable rank from another regiment or appointment, or from the unemployed list; or may be given to the senior officer of the next grade if he have special qualifications, or claims from length of service, or from gallantry in the field.

3*rd.*—If there are officers who, from previous service with a regiment, have strong claims upon it, those claims shall be taken into consideration on the occurrence of any vacancies.

VI. Temporary vacancies caused by the absence of officers on furlough, or on leave, shall be filled by the senior qualified officer of the next grade as laid down in Cl. V.

VII. One of the squadron or wing subalterns will be selected for the post of adjutant in the cavalry, and for that of adjutant or quartermaster in the infantry. In case of no officer with the regiment being fit for these appointments, one must be brought in from elsewhere. An officer on attaining the rank of captain shall vacate the appointment of adjutant or quartermaster unless reappointed by the Commander-in-Chief. The adjutants and quartermasters are assistants to the commanding officers as in the British service, and their office gives them no authority over the wing or squadron officers.

VIII. When an officer of a regiment shall be appointed to the staff of the army for three years he shall be made supernumerary in his regiment, and the vacancy thus caused shall be temporarily filled in the same manner as if the officer had proceeded on furlough, with the exception that in such a case the whole of the staff allowance attached to his appointment shall be available for the officer acting for him.

IX. An officer made supernumerary shall continue to hold his position in the regiment, and shall be promoted when his seniority shall entitle him to promotion, and on the termination of his staff service shall revert to his regimental appointment.

X. A supernumerary second in command of a regiment, employed on the staff and succeeding to the command of his regiment, shall at once relinquish his staff appointment and join his regiment.

XI. Subject to the sanction of the Commander-in-Chief, officers of Native cavalry and Native infantry, of equal regimental position and of the same branch of the service, may exchange with one another, provided that the commanding officers of the respective regiments certify that the exchange does not originate in any cause affecting the honour, character, or professional efficiency of the officers.

XII. An officer exchanging into a regiment shall be placed for regimental seniority below all officers holding equal regimental position at the time of his exchange.

XIII. The order of the Secretary of State to absorb unemployed officers, and the preponderance of senior officers, has caused many appointments proper to subalterns to be held by captains. As long as this condition continues the relative position of these officers on the rolls of the establishment must be guided by their present standing, but promotions to the next grade must be decided by their respective claims of length of service with the regiment, standing in the army, qualifications, and conduct. Claims of long regimental service should receive much consideration.

APPENDIX B.

RETURN showing the cases in Native Regiments under his Excellency's orders, in which senior officers are holding Inferior Regimental Positions to their juniors in Army Rank, 1st February 1875.

Rank.	Name.	Regiment.	Appointment.	Date of Army Rank.	Remarks.
Major -	C. W. Fletcher, S. C. -	1st Bengal Cavalry.	Officiating 2nd Squadron Officer.	20th Feb. 1870	Serving under the officiating 2nd in Command, whose army rank is 19th July 1871.
Captain -	A. R. Chapman, S. C. -	„	Adjutant and officiating 3rd Squadron Officer.	4th Jan. 1868	Holding an inferior regimental position to the 3rd Squadron Officer (acting at present in another appointment,) whose army rank is 11th June 1870.
„ -	H. C. Kemble, late 3rd E. L. C., (on leave).	2nd „ -	3rd Squadron Officer -	10th June 1869	Holding an inferior regimental position to the 2nd Squadron Officer, whose rank dates 4th September 1872.
Major -	T. C. Graham, (late 4th European Cavalry.)	„ -	Officiating 3rd Squadron Officer.	4th July 1871	Holding an inferior regimental position to 2nd Squadron Officer, a Captain.
Captain -	C. E. Salkeld, S. C. -	„ -	Adjutant - - -	8th June 1872	Holding an inferior regimental position to 2nd Squadron Officer, whose date of army rank is 4th September 1872.
-	C. T. M. Higginson, General List, Cavalry.	„ -	1st Squadron Subaltern.	12th Dec. 1868	Holding an inferior regimental position to the 2nd and 3rd Squadron Officers, whose commissions bear subsequent dates.
„ -	W. B. Craigie, General List, Cavalry.	„ -	2nd ditto -	4th Dec. 1871	Holding an inferior regimental position to the 2nd Squadron Officer, whose commission bears a subsequent date.
„ -	W. R. Hamilton, General List, Infantry.	4th „ -	Adjutant - - -	1st Nov. 1868	Holding an inferior regimental position to the officiating 3rd Squadron Officer.
„ -	E. H. E. Kauntze, S. C.	6th „ -	3rd Squadron Officer and officiating 2nd Squadron Officer.	11th May 1867	Serving under the officiating 2nd in Command, whose army rank is 15th January 1868.
Bt. Major -	R. W. Sartorius, V. C., C. M. G., (late 72nd Native Infantry).	„ -	1st Squadron Subaltern and officiating 3rd Squadron Officer.	1st April 1874	Serving under the officiating Commandant, whose commission bears date 8th June 1874, and the officiating 2nd in Command and officiating 2nd Squadron Officer.
Lt.-Colonel	C. H. Barchard, C. B., Staff Corps.	7th „ -	2nd Squadron Officer	8th Mar. 1865	Serving under the 2nd in Command, whose army rank bears date the 1st October 1871.
Captain -	J. A. McNeale, General List, Infantry.	8th „ -	3rd Squadron Officer	9th May 1870	Holding an inferior regimental appointment to the 2nd Squadron Officer, whose army rank is dated the 6th January 1871.
„ -	R. F. C. A. Tytler, General List, Infantry (on leave).	„ -	1st Squadron Subaltern.	27th Nov. 1869	Holding an inferior regimental appointment to the 2nd and 3rd Squadron Officers, whose army rank bears subsequent dates.
„ -	H. C. Greenaway, General List, Infantry (on leave).	10th „ -	Adjutant - - -	10th Nov. 1868	Holding an inferior regimental appointment to the 3rd Squadron Officer, whose army rank is 4th January 1870.
Major -	A. H. Prinsep, late 4th E. L. C.	11th „ -	2nd Squadron Officer and officiating 2nd in Command.	18th April 1874	Serving under the 2nd in Command and officiating Commandant, whose army rank as Major bears date the 10th December 1874.
Colonel -	P. S. Yorke, Bengal Infantry.	12th „ -	2nd in Command and Squadron Officer.	10th Oct. 1874	Serving under a Commandant whose army rank is Lieutenant-Colonel.
Major -	J. Upperton, Staff Corps	16th „ -	2nd in Command -	10th June 1874	Serving under the Commandant, a Captain.
Captain -	G. C. Ross, Staff Corps, (on leave).	„ -	3rd Squadron Officer -	11th Feb. 1862	Serving under the Commandant and holding an inferior regimental position to the 2nd Squadron Officer, who are both junior in army rank.
„ -	A. W. R. Becher, General List, Cavalry.	„ -	Adjutant - - -	20th Dec. 1871	Holding an inferior regimental position to the officiating 3rd Squadron Officer, who is junior in army rank.
„ -	D. C. S. L. Carnegie, late 4th European Light Cavalry.	17th „ -	Officiating 3rd Squadron Officer.	4th Aug. 1865	Holding an inferior regimental position to the officiating 2nd Squadron Officer, whose army rank is dated the 21st January 1869.
„ -	R. Wheeler, Staff Corps	18th „ -	Officiating 2nd Squadron Officer.	8th Dec. 1867	Serving under the officiating Commandant and the officiating 2nd in Command, both of whom are junior in army rank.
„ -	W. W. Biscoe, General List, Cavalry.	19th „ -	Adjutant - - -	4th Feb. 1872	Holding an inferior regimental position to the officiating 3rd Squadron Officer (a Lieutenant).
„ -	B. G. Vyvyan, General List, Infantry.	7th Native Infantry.	1st Wing Subaltern -	27th Nov. 1869	Holding an inferior regimental appointment to the Wing Officer, whose date of army rank is 20th December 1869.
„ -	E. H. Webb, General List, Infantry.	8th „ -	2nd „ -	26th Mar. 1870	Holding an inferior regimental appointment to the officiating Wing Officer, whose army rank as Captain dates the 2nd October 1872.
„ -	W. V. FitzG. Jacob, Staff Corps.	9th „ -	Quartermaster - -	8th Dec. 1867	Holding an inferior regimental appointment to the Wing Officer, whose date of army rank is 22nd January 1869.
„ -	W. Campbell, late 71st N. I.	14th „ -	Officiating 1st Wing Subaltern.	4th Mar. 1869	Holding an inferior regimental appointment to the officiating Wing Officer, whose rank dates 8th June 1873.
Colonel -	G. H. Thompson, Staff Corps.	15th „ -	2nd in Command -	8th Dec. 1874	Serving under a Commandant holding the rank of Lieutenant-Colonel.
Captain -	T. D. Madden, Staff Corps.	20th Punjab N.I.	Officiating Wing Officer.	13th June 1869	Serving under the officiating 2nd in Command, whose commission (as Captain) dates the 9th August 1870.
„ -	J. G. T. Carruthers, General List, Infantry.	21st „ -	Adjutant - - -	27th Nov. 1869	Holding an inferior regimental position to the officiating Wing Officer, whose date of commission is 10th December 1870.
„ -	F. H. Hinde, General List, Infantry.	22nd „ -	Officiating Wing Officer.	9th Aug. 1870	Serving under the officiating 2nd in Command, whose army rank is dated the 4th February 1871.

Rank.	Name.	Regiment.	Appointment.	Date of Army Rank.	Remarks.
Lt.-Colonel	N. Barton, Staff Corps	25th Punjab N.I.	Wing Officer	10th June 1874	Serving under the 2nd in Command, who is a Major.
Captain	G. H. Jackson, General List, Infantry.	27th „	Adjutant	28th Nov. 1869	Serving under the officiating 2nd in Command, whose date of army rank (Captain) is 4th August 1870.
„	H. S. Marshall, General List, Infantry.	28th „	Adjutant and officiating Wing Officer.	10th Nov. 1868	Serving under the officiating 2nd in Command, whose army rank (Captain) is 4th August 1869.
„	E. L. Stehelin, Staff Corps.	33rd Native Infantry.	Quartermaster	6th Aug. 1870	Holding an inferior regimental appointment to the Wing Officer, a Captain of 4th February 1871.
„	H. W. J. Senior, Staff Corps.	34th „	2nd Wing Subaltern	4th Mar. 1871	Holding an inferior regimental appointment to the officiating Wing Officer, a Captain of 19th December 1872.
Bt. Major	G. V. Fosbery, V.C., Staff Corps.	35th „	Wing Officer	13th Sept. 1866	Serving under the 2nd in Command, whose date of army rank (Major) is 10th August 1869.
Captain	J. G. Macleod, General List, Infantry.	37th „	Officiating 1st Wing Subaltern.	12th May 1869	Holding inferior regimental appointments to the officiating Wing Officer, a Lieutenant.
„	F. H. Williams, General List, Infantry.	37th „	2nd Wing Subaltern	25th Aug. 1869	
„	H. P. P. Nash, Staff Corps.	2nd Goorkhas	1st Wing Subaltern	4th May 1868	Holding an inferior regimental appointment to the Wing Officer, his junior in rank as Captain.
„	L. Smith, Staff Corps	3rd „	Adjutant	17th Nov. 1863	Holding an inferior regimental appointment to the Wing Officer, a Captain of 20th January 1869.
„	E. D. Smith, General List, Infantry.	3rd „	2nd Wing Subaltern	10th Nov. 1868	Holding an inferior regimental appointment to the Wing Officer, whose commission is of a later date.
„	E. P. Mainwaring, General List, Infantry.	4th „	1st Wing Subaltern	29th June 1869	Holding an inferior regimental appointment to the officiating Wing Officer, a junior Captain.

Note.—Many of the instances of supersession among the Captains which are shown in this Return will disappear on the Staff Corps Captains attaining the rank of Major on the completion of 20 years' service, when they will regain their original seniority to the Captains of the General List.

Appendix C.

DESPATCHES, CORRESPONDENCE, and MEMORANDA of FIELD MARSHAL ARTHUR DUKE OF WELLINGTON, K.G.

General Sir Edward Paget to Field Marshal the Duke of Wellington.

MY DEAR LORD DUKE; Sandhurst, 7th June 1826.

HEREWITH I send a copy of the Memorandum which I gave in to Mr. Wynn regarding the Barrackpoor Mutiny. I cannot, however, but hope that after all which passed between your Grace and him on the subject, he will before this time have sent it to you himself.

I have the honour to be
your Grace's sincerely obliged and faithful
EDWARD PAGET.

[*Enclosure.*]

General Sir Edward Paget to the Right Hon. Charles Wynn.

18th May 1826.

IN considering the report of the Special Court of Inquiry which was assembled, by order of the Supreme Government of Bengal, to investigate the causes of the mutiny at Barrackpoor, it is to be observed that the court set out with a preliminary discourse upon the peculiarities in the character of the Bengal army.

They next proceed to enumerate seven distinct causes as tending to excite that mutiny, entering into detailed reasonings upon each, and they terminate their labours with a statement of the causes which have produced "the deterioration unhappily so evident in our native soldiery."

The seven causes of mutiny set forth by the Court of Inquiry are as follows; viz:—

"First,—The general dislike to proceeding to the unhealthy country in which our military operations were to be carried on.

"Secondly,—The state of public feeling as to the nature and character of the war, and the difficulties which they expected to meet in its progress.

"Thirdly,—The aversion to being employed on board ship.

"Fourthly,—The want of a proper provision of cattle for the conveyance of their baggage.

"Fifthly,—The effect produced by the enormous wages extorted from the public and from individuals by all classes of persons whose services were wanted on this occasion.

"Sixthly,—The want of the knapsacks for which they had been put under stoppages.

"Seventhly,—The undue influence of the Subadar Major and Havildar Major of the 47th Regiment."

Before I offer any observation upon these several assigned causes for the mutiny at Barrackpoor, I beg particularly to call attention to the paragraph in the report which introduces this

catalogue of causes. It runs thus, "The causes of the late mutiny may be stated as follows, according to the order of importance which appears to have been attached to each by the mutineers."

To the statement made by the Court of Inquiry as to the two first causes, I have nothing to object. On the contrary, it is the fixed and unalterable conviction of my mind, that to these two causes are immediately to be attributed the disgraceful mutiny at Barrackpoor.

The third cause assigned is, "The aversion to being employed on board ship."

That mischievous individuals may have been employed to instil into the minds of the sepoys a belief that they were to be forced on board ship I can readily give credit to; but whilst the Court of Inquiry so feelingly describe the sufferings to which Hindoos are exposed, when subjected to such mode of conveyance, it appears that they have omitted to state, that so far from there having been any foundation for such a suspicion on the part of the sepoys, Major General Dalzell, Lieut.-Colonel Cartwright, with several other officers (both European and Native), had taken pains to convince them of its utter fallacy, and that the Commander-in-Chief himself in his reply to the petition of the mutineers distinctly disavowed it.

This *cause*, as it is termed by the Court, I must therefore consider as a mere pretext.

The fourth exciting cause of mutiny is stated by the Court to be "The want of a proper "provision of cattle for the conveyance of their baggage."

That such a want in some measure existed I am ready to admit; but when I read the following passage in this report of the Court of Inquiry:—"That his" (Col. Cartwright's) "efforts and "those of the departments whose province it was to supply cattle for the use of troops marching "failed of success until too late to stop the progress of the discontent, must ever be a matter of "the deepest regret; for the Court do not hesitate to believe that, in spite of every other dis-"couraging circumstance, if the means of carriage had been forthcoming at the proper period, "and in proportion adequate to men marching on such an arduous and trying service, none of "the other points of complaint would have been heard, and the late 47th Regiment would now "have been contending against the enemies of the State,"—I say, when I read this passage and compare it with the paragraph introductory to the seven alleged causes of mutiny—"The causes "of the late mutiny may be stated as follows, according to the order of importance which appears "to have been attached to each by the mutineers,"—I feel justified in charging this Court not only with utter inconsistency but of using the most unjustifiable means of exposing to obloquy and disgrace the highest authorities in India, in order to screen the mutinous sepoys from reproach.

But is this all that is to be said upon this subject? No! Has this Court pointed out in its proceedings that upon a Court of Inquiry being ordered to investigate the grievances of the mutineers, not one of them would condescend to obey the summons or to state what the nature of their complaint was?

Has this Court thought fit to notice, that in the statement of grievances made to the Commander-in-Chief, the night previously to the suppression of the mutiny, not the most distant allusion is made by the mutineers to the want of cattle.

Has this Court deemed it fair and honest to state, that in the numerous depositions taken before the Civil magistrates, no one of the arrested mutineers hinted even at the want of cattle being the cause of mutiny? No! This is all kept carefully out of sight.

But I have stated that I am ready to admit that a want of cattle in some measure existed.

The cumbrous nature of a sepoy's equipment is such as to render carriage cattle necessary to enable them to move at all. The hire of such cattle is at the expense of the sepoys themselves and not at the expense of the State.

The extraordinary demand for beasts of burden for the services of the State in consequence of the Burmese war, added to the utter aversion entertained by the natives of Bengal to be employed on the Eastern frontier, rendered the ordinary hire of cattle impracticable. In this emergency the only expedient that offered itself was that of the purchase of cattle. This measure was accordingly resorted to, and a loan of 4,000 rupees was advanced by Government to the 47th Regiment in order to facilitate the purchase. But forsooth! the aid of Government was not sufficiently prompt. All that I shall notice on this part of the subject is, that the rules and regulations of the Bengal army give the sepoys no right whatever to the aid of government to supply them with cattle for the conveyance of their personal baggage; that notwithstanding this, the government, in consideration of the emergency of the times, did not hesitate to render them aid in the shape of a loan; and lastly, that a hundred head of cattle for the use of the 47th Regiment were actually in their lines the night before this disgraceful mutiny broke out.

I maintain that if the *clearest right* could have been established on the part of the sepoys to this aid of Government, the case of their apologists could not be in the smallest degree advanced, whilst the fact is on record that a hundred head of cattle were supplied for the use of the 47th Regiment the night before that corps refused to march, and that Major-General Dalzell can state that the orders of the Commander-in-Chief to him were to make the movement of that corps depend upon the arrival of the cattle.

The Court of Inquiry have mixed up their fourth and fifth causes of mutiny together. I shall take the liberty of separating them.

The fifth cause is stated to be "The effect produced by the enormous wages extorted from "the public and from individuals by all classes of persons whose services were wanted on the "occasion;" and they make this a vehicle for introducing the question of an increase of pay.

With respect to the cause itself, there is to my mind something in it so monstrously absurd, that I shall withhold offering any opinion upon it, until I meet the man who is prepared to assert that the pay of an army ought to depend upon the fluctuating price of labour.

Upon the question however which the Court has allowed to grow out of it, I shall venture to offer a few remarks

Abstractedly, I have no scruple in asserting that the sepoy is not only well paid, but very well paid. But there are considerations connected with his pay, and the pay generally of officers and men in the Bengal army, which deserve attention.

It is a notorious and long established fact, that the natives of Hindoostan have a great aversion to service in the province of Bengal proper; and it is equally well known that this feeling of dislike pervades the Native army.

The causes of this aversion have their origin in the opinion and prejudices they entertain of the unwholesomeness of the climate, the deleterious effects produced upon their constitutions by change of food and water, and by the distance by which they are separated from their families and homes.

These are causes which equally apply to all natives of the Upper Provinces; but there are others which operate most powerfully to increase and confirm this aversion in the minds of the Native troops. Amongst these is to be ranked, as the most prominent, the deduction of upwards of four and a half per cent. upon their pay, on account of the difference between the Sicca rupee (the current coin of the country) and the imaginary Sonat rupee, in which the army, and the army *alone* is paid.

That such a distinction should be felt as a grievance by all ranks in the army, and by none more than the private sepoy, is not surprising.

It is in vain that nice calculators and subtle economists argue that the Sicca rupee, in which coin the army is paid in Bengal, is in intrinsic value so much better than the rupee in which the army is paid in the Upper Provinces, that there is in reality no deduction. Independently of the fact that a Sicca rupee does not go so far at Barrackpoor, and other stations in Bengal, as a Benares or Furruckabad rupee goes in the Upper Provinces, it would be difficult indeed to persuade the sepoy, when instead of receiving the number of rupees drawn for him in abstract, he is obliged to receive a less number, that his pay has not been (as he emphatically terms it) *cut*.

Facts upon facts daily came under my notice, which satisfied me that sound policy requires that some boon should be held out to the troops stationed in the province of Bengal generally, as a counterpoise to the aversions, prejudices, and disadvantages above referred to.

At present a Native regiment marching from the Upper Provinces to Bengal has in prospect everything which can tend to dishearten and disgust both Native officers and men: a hostile climate; deprivation of their accustomed food; harassing duties arising from the insufficiency of troops; a long and distant separation from their families and home; and their pay *cut*. To compensate for all these disadvantages, there is not one circumstance attending the movement of a corps from Hindoostan to Bengal which can in the smallest degree tend to make the Native troops look upon a change of quarters with satisfaction.

The circumstances of the times seem to require that something should be done to reconcile the Native troops to serve in Bengal, and on our Eastern frontier, with less repugnance than unfortunately at present exists amongst them for that particular service; and sordidly avaricious as they are in their nature, nothing would come so home to their feelings as an arrangement by which they would cease to brood over their *cut pay*.

But it is not the Native soldiers alone that feel the above-mentioned deductions from their pay as a grievance; the Bengal army at large, and the officers of all ranks, both Native and European, feel it; and when it is considered that the civil officers of Government, and all Native establishments of every description attached to the civil department, are paid in the Sicca rupee, that the revenue is paid in that rupee, and that in fact payments in the lower provinces are universally made in Sicca rupees, it is matter of astonishment how so unequal and invidious a distinction to the disadvantage of the army should have been so long in existence.

The sixth cause for mutiny assigned by the Court of Inquiry is stated to be "The want of the "knapsacks for which they had been put under stoppages."

The Court of Inquiry, with all their tenderness for the character of the sepoy, seem hardly to consider this as a fair ground for mutiny, and therefore pass it by with little notice. I shall only observe that these sepoys, though they had not their new knapsacks, were in possession of their old ones, and that no blame seemed to attach to the commanding officer of the regiment for their not having received the former in due time.

The practice however of charging soldiers for articles of their equipment before they were delivered to them appeared to the Commander-in-Chief so highly objectionable, that the Government of Bengal was pleased at his recommendation to issue a general order prohibitory of such a practice.

It occurs to me here to add (in reference to the sepoy's baggage and the carriage cattle for its conveyance) that the Bengal Government has by a general order established a rule and fixed a scale by which these matters are henceforth to be regulated and determined; and it is only wonderful, that with the known propensity of the sepoy to accumulate and hoard up every species of rag and rubbish as so much treasure, such an ordinance should have been reserved for the year 1825.

With respect to the seventh alleged cause of mutiny, namely, "The undue influence of the "Subadar Major and the Havildar Major of the 47th Regment," I have only to observe, that after the amplest inquiry, the Commander-in-Chief had every reason to be satisfied, that so far from their conduct having been objectionable, it had been most praiseworthy and meritorious, and he rewarded them accordingly.

Having followed the Court through their seven assumed causes of mutiny, I shall now take the liberty of stating that it appears to me that much more deep rooted causes of insubordination existed than any of those suggested by the Court of Inquiry.

That the horrors with which the Bengal sepoys viewed a Burmese war immediately produced the actual explosion at Barrackpoor, I have no doubt; and it is not surprising that every sort of pretext for their insubordination should have been resorted to to cover their dastardly repugnance

to the service in which they were about to be engaged; but I think that no reasonable man can view the internal state of the 47th Regiment and be surprised at any irregularities or acts of insubordination of which that corps might have been guilty.

The conduct of Lieut.-Colonel Cartwright, who commanded the regiment, is not only free from reproach, but he proved himself under extreme difficulties to be a most zealous and deserving officer; but it is in vain to look beyond him for any of that zeal and military ardour amongst his officers, so indispensable to the maintenance of good order, discipline, and efficiency of the corps committed to their charge.

If the apathy, indifference, and neglect of duty manifested by the officers of the 47th Regiment was confined to that corps alone, it would be a matter of very little moment; but I lament to say that the observations I had the opportunity of making upon the state and condition of the Bengal army have led me to the conclusion that this apathy, indifference, and neglect of duty is very general in the infantry.

A tour of inspection which I made in the winter of 1823 and 1824 afforded me the means of seeing a large portion of the Bengal infantry, and the result of my observations left a very unfavourable impression on my mind as to their order and efficiency.

The establishment of European officers, even if kept up complete, is in my humble opinion very inadequate to its object. What then must be their state of inefficiency may be judged, when the fact is known that almost all the numerous staff appointments of this army are filled by infantry officers; that the commissariat is supplied in the same way; that almost all the corps of irregular cavalry and infantry are supplied in the same way; that all the provincial battalions are supplied in the same way; that many officers of the same arm are invested with civil and political employments, whilst others are employed in the service of Native princes, and in charge of escorts of political agents. For these and various other objects not here noticed (and not including furloughs and absence from sickness) an immense mass of infantry officers is constantly withdrawn from regimental duty; and what makes the fact more palpably mischievous is, that for the most part, these officers are, from character and talent, the best that can be selected from their corps. The consequence of this deplorable system is that the regiments are left to the management and direction of old gentlemen without energy, and children without instruction or experience, all hungry and thirsty for any employment which will exempt them from the performance of the duties of a battalion.

If it be possible to conceive any system more calculated to produce inefficiency and imbecility than another, it is that of seniority service in India, where the climate makes such dreadful havoc in the moral and physical energies of man; and here this system prevails in all its baneful impotency.

Nor is this pernicious system confined to the European part of the establishment; it prevails equally, and with equally injurious effects, in the Native part of the establishment.

The length of service, more than the good character and useful qualifications of the sepoy, is too much considered as his best claim to the promotion of naick (corporal), and this evil is so deeply rooted, that he considers his promotion more as a matter of right than of reward, and consequently becomes mutinous and discontented by his supersession.

The same dangerous and unmilitary principle prevails in all the superior ranks from naick to subadary and little short of downright profligacy is considered as a justification of supersession.

Under such a system it is not surprising that the Native commissioned officers of the army, who all rise from the ranks, should for the most part be composed of imbecile old men, quite unequal to the proper discharge of their duties.

The facts which I have here stated are in themselves quite sufficient to account for the present state of inefficiency of the Bengal Infantry; but there are other causes of deterioration which are worthy of notice. One of the most prominent is that which results from the dispersion of the infantry in driblets over the face of this extensive Presidency.

In former times it was the practice to keep embodied a considerable corps of troops of all arms, denominated "the army in the field," and as long as such a corps existed, the opportunity was afforded of maintaining a military spirit, and of establishing uniformity of system and practice throughout the army.

Of late years, in consequence of the extension of our territory and the military occupation of Nagpoor, Saugur, and the Western Provinces, without any increase of military establishment, this army in the field has been from necessity discontinued; and the evils of this change have not only been productive of serious injury to the order and discipline of the troops, but until the late augmentation took place, had deprived us altogether of a corps of reserve ready to take the field.

Unfavourable as is the foregoing statement, I regret to add my conviction that the sepoy himself is not what he used to be.

The time was that the sepoy looked up to the commander of his regiment as to the father of a family, as to a friend, protector and defender, in every emergency; whilst the commander looked upon his regiment as his children and devoted dependants—a state of things congenial to the habits and feelings of the natives of a country in which, from time immemorial, all honour, distinction, and power, have been vested in military hands.

The time was that the sepoy looked up to the European officer as to a being of a superior nature, and the privilege of entering into our service was considered an honour and distinction.

Woefully, indeed, has our thirst for civil institutions, and predilections for British customs and fashions changed the nature of the relation between the European officer and the sepoy.

Accustomed now-a-days to see the power and authority of his commanding officer controlled and superseded by every boy fledged from the colleges of Hertford and Fort William, it is not

surprising that the respect, and even veneration, with which they formerly looked up to their officers should have vanished.

Having said thus much with respect to the condition of the Infantry, I think it may be satisfactory to add that the state of the Cavalry was to my mind much more prosperous; they seemed to possess a very superior *esprit de corps*, and to be in a much better state of discipline and efficiency.

This I, in a great measure, attribute to the European officers being much less detached from their regiments than in the Infantry, and to the regiments themselves being much less dispersed in detachments.

From what I have written, it will be obvious that I have nothing in the main to object to the statement made by the Court of Inquiry of the causes which, in their opinion, have produced (what they term) "the deterioration unhappily so evident in our Native soldiery."

I should, therefore, here terminate my commentary upon their report, if I did not deem it imperative upon me to offer some observation on the two following paragraphs, which are to be found at pages 505 and 506 of their report:—

"On the character of the mutinous proceedings, the Court beg to observe that the whole appears to have been the ebullition of despair at being compelled to march without the means of doing so, and that there is not the shadow of suspicion attaching against the loyalty and fidelity to the service of the men who were prevailed upon to set up pretensions with arms in their hands; beyond the absurd attempt at standing out to the last, there does not appear to have existed the most remote idea of carrying matters further, nor any notion of attempting to subvert the government, or to excite hostilities against the State.

"In the prosecution of their mad career, no individual received personal injury from them, nor did the society of Barrackpoor consider it necessary to remove from the place from a dread of their intentions; and at length, when the mutineers were broken and dispersed, hardly any out of nearly a thousand stand of arms were found loaded, although each man was in possession, throughout the affair, of forty rounds of service ammunition."

The spirit of blind partiality which breathes through these paragraphs is too palpable to need exposure, and if the gentlemen who composed them had, in their zeal and anxiety to exculpate their mutinous sepoys, confined themselves within the bounds of common prudence in the colouring which they have given to the transactions at Barrackpoor, I should suffer this "ebullition" of bigotry and prejudice to pass without comment. They have allowed, however, their zeal so far to overstep their discretion, that it becomes necessary to point out the egregious fallacy of much of their statement.

The paragraphs are composed of divers distorted facts and gratuitous assumptions, and I shall endeavour to follow them in the order in which I find them.

The first statement I find is, that "the whole appears to have been the ebullition of despair at being compelled to march without the means of doing so."

I deny the fact that they were compelled to march without the means of doing so. The means were in their possession (as already shown), and instead of obeying the orders of their general to march, they met him with pointed bayonets at his breast.

I next find, "that there is not the shadow of suspicion attaching against the loyalty and fidelity to the service of the men who were prevailed upon to set up pretensions with arms in their hands."

What sort of a notion these gentlemen have of loyalty and fidelity it is not for me to determine, but I trust there are not many military men to be found who will blazon forth "the loyalty and fidelity to the service," of men, whose two first causes for mutiny are represented by this very court itself to be the dread of the enemy they were about to encounter, and of the climate in which they were about to serve. But it seems they "were prevailed upon to set up "pretensions with arms in their hands." Prevailed upon! Who prevailed upon them? This the court has omitted to tell us; and with the omission, I defy any unbiassed man to read these two fatal words without discovering the animus with which these paragraphs were composed.

We are next informed that "beyond the absurd attempt at standing out to the last, there does "not appear to have existed the most remote idea of carrying matters further, nor any notion of attempting to subvert the Government or to excite hostilities against the State."

Beyond the absurd attempt at standing out to the last, there does not appear to have existed the most remote idea of carrying matters further.

In urging this plea of absurdity, it is very obvious that the court have for their object either to wipe away or to justify a most flagrant and daring act of mutiny.

Had this court forgotten, when they framed these paragraphs, that a thousand mutineers had but a few weeks before been standing in full military array, with arms in their hands, setting up the most inadmissible pretensions? That they had seized the colours of other corps, and used the most unjustifiable means of enticement and intimidation to bring others over to their cause?

Had they forgotten the reiterated attempts of Major-General Dalzell, of Lieut-Colonel Cartwright, and of some few other officers in the cantonment of Barrackpoor, to bring them to a sense of their duty without effect? Had they forgotten the nature of the pretensions set up by these sepoys; and that an increase to their pay was amongst the most prominent and urged to the very last? Had they forgotten that these mutineers had even been solicited to come forward and state their grievances, without effect? Had they forgotten that every means consistently with his duty had been resorted to by the Commander-in-Chief to induce them to submit to his authority, before he proceeded to measures of coercion? Had they forgotten that the Commander-in-Chief himself was obliged to take the field in order to reduce them to submission. All this and much more must these gentlemen have forgotten before they could have ventured to state that there "did not appear to have existed the most remote idea of carrying matters further."

But it seems that they had "no notion of attempting to subvert the Government or to excite "hostilities against the State."

If such flimsy apologies for military mutinies are to be admitted, farewell (and especially in India) to the stability of governments and states.

My mind is not sufficiently refined to understand what this court means by the assertion that these mutineers had no notion of exciting hostilities against the State.

They stood in open military array setting the orders and authorities of the State at defiance, and employing all the means they possessed to gain abettors to their cause.

I am perfectly willing, however, to adopt the assumption of the court that these mutineers had not "any notion of attempting to subvert the Government."

With this admission I must however be permitted to express my conviction, that if this mutiny had been allowed to gain head, nothing less than the general mutiny of all the troops then in motion to serve on the Eastern frontier (if not of the whole army) would have been the result.

I next find that "in the prosecution of their mad career no individual received personal injury "from them, nor did the society of Barrackpoor consider it necessary to remove from the place "from a dread of their intentions."

"Mad" as was the career of these mutineers in the opinion of the court, I must be permitted to observe that there was a great deal of method in their madness.

The most perfect order and system prevailed in their arrangements. Their parades regular, their guards mounted, their sentries posted, their patrols in constant motion during the night. The mutineers exercised on the parade, and all under the guidance of a chief, a Brahmin, who, two or three days after the suppression of the mutiny was found concealed in the lines of the cantonment (in the habit of a faqueer), tried by a Native general court-martial, condemned to be blown from the cannon's mouth, and executed on the gallows.

My only object in mentioning the above sentence of the general court-martial is to show what was the feeling of the natives themselves with respect to the conduct of these mutineers, in contradistinction to that of their apologists.

That any personal injury was received from them beyond the presenting their fixed bayonets at the breast of their general, and the hustling some of their officers, both European and native (the particulars of which circumstances I am not at this moment able to speak to), I acquit them of any acts of personal violence; but when the court think fit to assert, "nor did the society of "Barrackpoor consider it necessary to remove from the place from a dread of their intentions," I find it necessary to assert, in opposition to this statement, that nothing could exceed the trepidation and panic which had seized the society (as it is called) of Barrackpoor at the time I arrived there, the day previous to the suppression of the mutiny; and that with the exception, the brilliant exception, of the Governor-General himself and his family, whose perfect firmness and equanimity nothing could shake or disturb, and a very few others in the cantonment, the confusion and alarm were unbounded and disgraceful.

Many did remove from the place, and many more I verily believe would have done so if they had had the means.

The concluding number of these notable paragraphs is couched in the following words: "And "at length, when the mutineers were broken and dispersed, hardly any out of nearly a thousand "stand of arms were found loaded, although each man was in possession throughout the affair "of forty rounds of service ammunition."

Whether the arms were loaded or unloaded is to my understanding (I acknowledge it without hesitation or doubt) a matter of perfect indifference in the consideration of this question. The legitimate orders of the Commander-in-Chief these mutineers deliberately refused to obey, after having received a distinct declaration from him that if they did not lay down their arms they would instantly pay the penalty of their disobedience.

The consequence of their stubborn delinquency rests upon their own shoulders.

But I have not done. The court may know better than I do how many of these arms were found unloaded; but this I presume to know better than the court, namely, that these broken and dispersed mutineers did not hesitate, when they came to a place of shelter, to face about and fire upon His Majesty's royal regiment of foot.

EDWARD PAGET.

MINUTE by the COMMANDER-IN-CHIEF, dated 24th March 1836.

In the Bengal Code of Military Regulations, which are considered authority on most subjects, in chapter XX., paragraph 2, will be found what follows:—

"The military establishment of this Presidency affording but few gratifications out of the line of regular succession, the public good requires that such as do exist should be considered as the rewards of professional merit, and not be granted by partial favour. An adherence to this principle, under a Government subject to continual variations in the constituent members, may be most reasonably expected, by suffering the distribution to flow through the Commander-in-Chief alone, by conceding to him the exclusive management of the details in all military appointments."

2. On inquiry I do not find that this published regulation has ever been abrogated; but practically it has ceased to be acted on, and many important military arrangements are now made without any other reference to the Commander-in-Chief than a request that A or B may be placed at the disposal of the Governor of Bengal, and (recently) Agra.

3. I entertain a decided opinion that this modern practice is considerably detrimental to the discipline of the army and injurious in other respects, and therefore that it is my duty to submit my view of the circumstances to his Lordship the Governor General for his consideration.

4. Before I proceed further I take leave to disclaim all views to patronage, and to assure his Lordship in Council that benefit to the honorable company's service is my only consideration, and that if that object can be effected in any way or by any measure short of the regulation first quoted it will be equally satisfactory to me.

5. It will be right for me to state as the base on which to ground what I am going to say, that no less than 263* officers are now withdrawn from the army, and appointed to situations of more or less emolument without any real reference relative to them being made to the Commander-in-Chief.

* See returns annexed.

6. The great evil (as respects the army) of this proceeding is that candidates for those numerous appointments do not depend on their military reputations for the success of their views; they do not look to their character with their military chief for their advancement, but they feel that their success depends more on such recommendation as they can contrive to have laid before the head of the Government by private friends, by the secretaries of the several departments, or, in short, by anybody, rather than the proper channel through which (as I think) a soldier's advancement should flow, and thereby the distinguished discharge of their military duties, or the opinion entertained of them by the military authorities, are rendered very secondary considerations in the minds of such aspirants.

7. This is the way in which I consider the discipline of the army to be injured.

8. I have said "that it is injurious in other respects." During the short period that I have had the honour to command the army in India a number of cases (which it does not seem requisite to detail, but which I am prepared to point out if required) have occurred, which I think prove that the absence of reference to military authority is detrimental to the service.

9. It must frequently happen that however fit an individual may be for any given appointment there may be circumstances in the moral situation of his regiment, in its state of discipline, or in his own personal history, which may render his removal from his corps highly detrimental, both positively as respects his own position and negatively as relates to the example which his employment affords.

10. These are circumstances which ought to form points for consideration before an officer is withdrawn from his regiment, but none of which are likely to be known or appreciated by any but the military authorities.

11. A short time since an officer who had been severely censured by one general court-martial, had been punished by another, and who had immediately antecedently been rebuked in general orders by the commander-in-chief was *selected* by the civil government for a particular command. A worse example or one more calculated to have done mischief cannot easily be conceived.

12. That officers who are to fill civil offices should be selected by the civil government I freely admit, but even in such cases I think that a reference for their military character would be right. I cannot view in the same light selections for commands in the field, for the command of regiments, or for military situations, on which the efficiency or discipline of the army may depend.

13. Great incongruity or military inconveniences are frequently arising from this mode of appointment; juniors are placed over seniors; staff officers whose services can ill be spared are withdrawn without consideration of their positions; in short the evils are very numerous.

14. I can conjecture but one motive for appointments being so made.

15. I think that the discipline of the army would be benefited by a change.

16. It is not requisite for me to remind his Lordship, the Governor-General in Council that even our Sovereign does not withdraw officers from the army or appoint them to military posts without reference to his Commander-in-Chief, but may offer an opinion that the discipline of the British Army (and Navy also) are greatly upheld by the knowledge which officers possess, that it is only through the chief who is placed at their head that they can look for advantages resulting from their profession.

17. The Commander-in-Chief is held responsible for the discipline, the efficiency, and the conduct of the army, but can he justly be held so if officers are withdrawn from the ranks without his sanction, and military appointments are made without any reference to him.

18. I shall not presume to suggest any remedy for the evils I have developed, but shall content myself with having submitted the facts to his Lordship the Governor General in Council; but I will venture to propose that the regulation which I have quoted in the first paragraph of this minute shall be so modified as to convey the real intentions of the Government.

(Sd.) H. FANE.

NUMERICAL RETURN of OFFICERS employed in the CIVIL BRANCH of the ARMY.

——	Colonels.	Lieut.-Colonels.	Majors.	Captains.	Lieutenants.	Second Lieutenants, Cornets, and Ensigns.	Total.
Department of the Military Secretary to Government.	1	—	1	1	—	—	3
Stipendiary members of the Military Board	—	1	1	—	—	—	2
Audit Department	1	1	—	2	—	—	4
Commissariat Department	—	—	2	18	5	2	27
Secretary to the Military Board	—	—	—	1	1	—	2
Paymasters	—	—	—	2	4	—	6
Pension Paymasters	—	—	—	3	2	—	5
Officers of the Ordnance Department	—	1	—	5	2	—	8
Clothing agents	—	—	1	1	—	—	2
Secretary to the Clothing Board	—	—	—	1	—	—	1
Political agents and assistants,* officers employed in civil charge of districts.	—	5	5	32	19	6	67
Agent for gun carriages	—	—	—	1	—	—	1
Agent for the Manufacture of Gunpowder	—	—	1	—	—	—	1
Barrack-masters	—	—	—	1	—	—	1
Officers of the Department of Public Works	1	—	1	13	12	9	36
Officers in charge of canals, bridges or roads	—	1	—	5	5	2	13
Officers of the Stud Department	—	—	—	7	1	1	9
Officers of the Revenue Survey	—	—	—	4	4	1	9
Surveyor-General's Department	—	—	1	1	4	2	8
Superintendent of Police	—	—	—	1	—	—	1
Superintendent of the Foundry	—	—	1	—	—	—	1
Appointments to the Mint	—	—	—	—	—	—	—
Total	3	9	14	99	59	23	207

NUMERICAL RETURN of APPOINTMENTS in the direct gift of the GOVERNOR-GENERAL.

——	Colonels.	Lieut.-Colonels.	Majors.	Captains.	Lieutenants.	Second Lieutenants, Cornets, or Ensigns.	Total.
Governor-General's Body Guard	—	—	—	—	2	—	2
Calcutta Native Militia	—	—	—	1	1	—	2
Kemaon Local Battalion	—	—	—	1	—	—	1
Nusseeree Battalion	—	—	1	—	1	—	2
Sirmoor Battalion	—	1	—	1	—	—	2
Assam Light Infantry	—	—	1	—	5	—	6
Assam Sebundy Corps	—	—	—	1	4	—	5
Talain Corps	—	—	—	—	1	2	3
Arracan Local Battalion	—	—	—	1	4	—	5
Mehairwarrah Local Battalion	—	1	—	1	—	—	2
Ramgurh Battalion	—	—	—	1	—	—	1
Sylhet Light Infantry	—	—	—	1	1	—	2
Bheel Corps	—	—	—	1	—	—	1
Nerbudda Sebundy Corps	—	—	—	1	—	—	1
5th Local Horse	—	—	—	1	—	—	1
Nizam's Service	1	—	2	4	1	1	9
Serving with the disciplined troops in Persia	—	—	—	2	2	—	4
Bhopaul Contingent	—	—	—	1	—	—	1
Scindiah's Contingent	—	—	1	1	—	—	2
Town Major of Fort William	—	—	—	1	—	—	1
Commandant of Palace Guards, Delhi	—	—	—	1	—	—	1
Fort Adjutant, Allahabad	—	—	—	1	—	—	1
Fort Adjutant, Fort William	—	—	—	—	—	1	1
Total	1	2	5	22	22	4	56

* Includes two captains, three lieutenants, and one ensign, under the orders of the Government of Agra, and one major as superintendent of the Mysore Princes.

NOTE.—The following appointments not included above.

Superintendent of the Buildings, Moorshedabad.
Superintendent of the Canal in Oude.
Superintendent of the Observatory at Lucknow.

N.B.—The brevet rank of officers has been observed in the preparation of this return.

EXTRACT from Minutes of Evidence taken before the Commissioners appointed to inquire into the Organization of the Indian Army, 1858, 1859, Appendix, No. 65, chap. IV. By Lieutenant-General Sir Patrick Grant, C.G.B., Commander-in-Chief.

* * * * * * * *

15. The efficiency of regiments, in my opinion, is most injuriously affected by the number of officers taken from corps for staff employment. Either regiments are drained of their best and most deserving officers, or patronage is not dispensed with justice to individuals, and solely with reference to superior merit. On this head, in a minute dated the 21st May 1857 (duly forwarded to the Supreme Government and to the home authorities), I wrote as follows, and I adhere now to the opinions I then expressed, viz:—"I repeat, that in the Madras Army the principal causes "of complaint are the unceasing demands upon the energies of the men, their poverty, and, "more than all, the great paucity of European officers of standing and experience present with "regiments. Officers and men must be brought to look upon their regiments as their home, "and not to fix their whole thoughts, as they now do, on devising means of getting away to staff "or other detached employment. Anything rather than regimental duty is the universal feeling. "The consequences of this craving are, utter indifference, not to say positive dislike, towards "their men, and the engendering of a restless, discontented disposition, which is, I doubt not, "communicated to the soldier." See also my memorandum of the 29th June 1857, placed in the hands of the Governor-General on that date.

* * * * * * * *

17. * * * * "Either form a staff corps, or completely change the system by which local and irregular forces are at present officered from the line, the effect of which is to deprive the regular army of its most valuable officers, thus making the main army of minor importance to those local and irregular excrescences and make-shifts."

"Take the officers who are to serve with these local forces from the line, but let them understand that they will be struck off the strength of their own regiments, and have no further claim to promotion therein, or to any of the staff appointments of the regular army."

* * * * * * *

PAT. GRANT, Lieutenant-General,
Commander-in-Chief,

Ootacamund, July 17, 1858.

MEMORANDUM by Sir Patrick Grant, dated Calcutta, 11th April 1857, (page 148, Re-organisation of the Armies of India, Vol. I.)

* * * "Three officers for each Native corps (which I consider quite a sufficient number as I should now wish to see the Native regiments constituted, whether of Cavalry or Infantry.")
* * * * * "34 regiments of Native Infantry, 102 officers"—[that is, three per regiment].

From the Adjutant General in India, to the Secretary to Government, Military Department, No. 810E, dated Simla, 18th May 1869.

In reply to your letter No. 233, of the 14th instant, inquiring whether the services of certain officers* can be spared for employment in the Foreign Department, I am directed to inform you that the Commander-in-Chief has no objection, provided those officers who hold permanent appointments vacate them at once.

* Lieut. C. L., Prendergast, General List, Infantry, Quartermaster 40th N. I.
" T. R. Cowie, Staff Corps, Adjutant 2nd N. I.
" F. Barrow, 2nd Suuadron Subaltern 1st Bengal Cavalry.
" M. N. Gubbins, 1-11th Foot, doing duty with the 37th N. I.

(Signed) FRED. THESIGER,
Adjutant-General.

From the Secretary to Government of India, Military Department, to the Adjutant-General, No. 675, dated Simla, 28th July 1869.

I AM directed now to acknowledge receipt of your letter No. 810E, dated 18 May, 1869, stating that his Excellency the Commander-in Chief has no objection to spare the four officers marginally named for civil employ in Oudh, provided those of the officers who hold permanent appointments vacate them at once.

Lieut. C. L. Prendergast, General List, Infantry, Quartermaster 40th N. I.
" T. R. Cowie, Staff Corps, Anjutant 2nd N. I.
" F. Barrow, 2nd Squadron Subaltern 1st Bengal Cavalry.
" M. N. Gubbins, 1-11th Foot, doing duty with the 37th N. I.

2. These officers must, under existing regulations, enter civil employ as probationers and continue in that position for one year, and are liable, during that year, if they show an inaptitude for civil employ, to have to revert to military duty; to which also they must revert if, at the end of the year, they have failed to pass all requisite civil examinations.

3. After very careful consideration of the subject, the Right Honourable the Governor-General in Council regrets that he cannot accept the principle that officers must, prior to obtaining civil employment on probation, resign the military appointments they hold; and I am therefore to request you will move his Excellency the Commander-in-Chief to place the officers asked for at the disposal of Government, unless in any of the individual cases there are objections why the particular officer should not be taken.

4. I am to observe that the Right Honourable the Governor-General in Council trusts that the very limited number of officers likely to be required from the Native army at any one time (judging by past experience) for civil employ on probation, will prevent the decision arrived at

by Government from causing any real detriment to the efficiency of regiments; and, of course, any objection raised by his Excellency in a particular case, owing to the absence of other officers from a regiment or any other cause, would receive the most ready attention from Government.

(Signed) H. W. NORMAN, Major-Genl.,
Secy. to the Govt. of India.

From the Adjutant-General in India to the Secretary to Government, Military Department, No. 1673, dated Simla, 18th August 1869.

I HAVE the honour, by desire of the Commander-in-Chief in India, to acknowledge the receipt of your letter No. 675, dated July 28th, 1869.

2. In that despatch the following decision of the Right Honourable the Governor-General in Council is set out—

"After very careful consideration of the subject, the Right Honourable the Governor-General in Council regrets that he cannot accept the principle, that officers must, prior to obtaining civil employment on probation, resign the military appointment they hold."

3. According therefore to this decision, officers holding military staff appointments are now liable to be placed at the disposal of the civil administration, they retaining a lien on their military staff appointments, and therefore half the emolument of the said appointments, together with the results flowing from the new furlough regulations.

4. If this decision were based on a principle known to the constitution of the army, according to the settlement on which it was reorganized after the Mutiny, it would have been accepted by his Excellency without any remark in this department.

But as this very important decision appears to Sir W. Mansfield opposed to the principles on which rest the reforms of late years, his Excellency is obliged, most reluctantly, to state the arguments against the decision in question, which in his mind have great force.

5. In the first place, it is to be observed that the point which has been raised has little to do with the Staff Corps regulations. The service is affected really by a question which is independent of those regulations, and this question does not touch those young officers who are in a state of probation in Native regiments, and have not yet been permanently appointed to the Staff Corps.

2ndly. His Excellency would remark, that it has been repeatedly laid down that all the regimental appointments under the existing regulations come under the head of staff appointments. The wing subalterns or probationers being excepted, the officers are selected for their regimental situations very much as they are in any administrative department, the Commander-in-Chief being held responsible for their efficiency. It is in the assertion of the principle herein stated, that the great change operated in regimental organization, by which the number of regimental officers was reduced from twenty-six to seven, finds its justification, viz., that in the efficiency of the officers, and the guarantee given of fitness, the State might seek assurance rather than in large establishments.

6. His Excellency begs that this statement of principles may be held in view in the consideration of the question.

For by the recent decision, forming the subject of this letter, the military staff appointments are put in a different category from all staff appointments held by military men in the different branches of administration. His Excellency thinks we may assume with tolerable certainty, that the process indicated by the decision would not be permitted in any other branch of the public service.

Thus, an officer in the Pay or Commissariat Department would hardly be transferred to act in a political agency, with the pay of the former, while he was learning the business of the latter.

For, with great deference, his Excellency would say that to this does the adoption of the principle now introduced in practice amount, a practice which is probably understood by executive departments, which are interested in keeping down nominal budgets; this he believes may have escaped the notice of Government, as it did his own until very recently, when turning over the matter from different points of view.

7. Thus it may be said that this decision enables a so-called probationer in a civil department, who holds the position of 2nd in command or adjutant or quartermaster in a regiment, to draw the emoluments, viz., half the staff allowance of the military position, and half that of the new civil one in the absence of the permanent civil holder. Consequently, it must be said, in truth, that the civil departments concerned are thus paying their recruits out of the military budget. It follows then that the army appointments are starved, and officers do the work of the important regimental staff for half the allowances which, as being sanctioned, must be held to be the proper meed for their services. The result must then be dissatisfaction on their part, joined to the feeling, that any employment in the civil administration, whether it may be the mechanical business of the pay department, the out-of-door life of the police, the sedentary office of an assistant judge in the mofussil, subordinate employ in the commissariat, or in short any one of the numerous appointments of the civil administration, is considered superior to, and of more importance than, those offices on which rest the discipline and the leading of Her Majesty's forces in quarters and in the field.

8. It was always believed that the engraining of this view in the minds of the officers, under the old regime, led more than anything else to the break-down of the old army.

It is his Excellency's conviction that it was one of the many causes of that calamity, and that it was certainly not the least.

9. It will be seen from the above, that the results of the decision of Government are not, in his Excellency's opinion, to be measured by the number of officers who will thus be alienated from their military duties, while they retain a lien on their military staff appointment, but by the

general effect on the minds of the officers, and therefore the morale of the army at large, to which it cannot but come home that regimental efficiency must defer to all other considerations.

10. Thus it is that, in his Excellency's apprehension, the principle of the reorganization on which Government has been acting for many years is set aside in the matter concerned.

11. Again, it is to be recollected that the recent furlough regulations have been so arranged as to enable officers to retain a lien on their permanent appointments, but not on their acting ones. Consequently, an officer who is an adjutant on the rolls of his regiment but acting as a subordinate in a civil department, might, after serving for a year in the latter position, he having gone to it because his regiment was ordered to a disagreeable station, go to England on furlough for two years in his character of adjutant; the interest of his regiment having been sacrificed from the first, and of the officer who might be appointed to do his duty.

His Excellency can assure Government that this is not an impossible case.

12. He is also able to say, as a matter of personal experience, that the general complaint of the regimental commanding officers is to the effect that the regimental feeling which binds officers to their men and regimental interests is not what it should be. With a great many, the object is to get away from the regiment, and so to escape from the direct operation and strict obligations of regimental rule.

13. His Excellency would be the last person in the world to interfere with a reasonable ambition, and he would never make an objection to the final transfer of an officer from one branch of the service to another.

But, for the reasons above stated, it is impossible, he thinks, not to admit that the last ruling of Government, involving as it does a new principle, with reference to the transfer of officers from the military to the civil administration, does hold out a premium, which cannot but shake regimental efficiency; while it may be doubted, his Excellency believes, that it is wanted in the civil interest of the country.

14. It appears to his Excellency that an officer who already holds a real regimental staff appointment, is neither an inexperienced nor a very young man; when he applies for transfer to the civil administration, he should be understood to know his own mind, and to take his chance as to whether he is competent for the new career he seeks.

If he prove to be incompetent, he should, on coming back to the Commander-in-Chief, compete with others who have not left the military career, but are looking for appointment or promotion. If he be really a good and effective officer, he will, in general, not have long to wait.

15. Two facts may be stated with the most perfect certainty—

It is found that officers wishing to go to the civil administration, are, in general, willing to resign their military appointments, although acting appointments in the civil service are only at first offered to them; many instances of this have occurred during the last two years.

Secondly. It is almost unknown that an officer who has been for a year with the civil department is returned to the military authorities as incompetent.

16. His Excellency has now stated the argument which has occurred to him. This he would have refrained from doing, were it not for the extraordinary importance he attaches to the ultimate results of the Government decision on the highest and best feelings of the officers of the army.

His Excellency cannot expect a reversal of that decision, but he would beg, as a favour, that this letter may be forwarded for the consideration of his Grace the Secretary of State in Council, in continuation of the former correspondence.

(Signed) FRED. THESIGER,
Adjutant-General.

From the Adjutant-General in India to the Secretary to Government, Military Department, No. 1921E, dated Simla, 17th September 1869.

REFERRING to Military Department docket, No. 183, of the ninth current, I am desired by the Commander-in-Chief to request you will be so good as to move Government to say, whether Lieutenant M. N. Gubbins, 11th Foot, appointed an Assistant Commissioner in the Oudh Commission by Foreign Department Notification, No. 1635, of the 19th ultimo, is to be considered as having vacated the regimental appointment of 1st Wing Subaltern, 37th Native Infantry, which he held as a probationer for the Staff Corps.

(Signed) FRED. THESIGER,
Adjutant-General.

From the Secretary to the Government of India, Military Department, to the Adjutant-General, No. 468, dated Simla, 27th September 1869.

I AM directed to acknowledge your letter No. 1921E, dated 17th September 1869, and, in reply, to acquaint you, for the information of his Excellency the Commander-in-Chief, that officers holding appointments in Native regiments as probationers for the Staff Corps, on being appointed during their year of probation to a department, vacate their probationary regimental appointments.

2. Lieutenant Gubbins may be considered to have vacated his regimental appointment of 1sl Wing Subaltern, 37th Native Infantry, which he held as a probationer for the Staff Corps.

(Signed) H. W. NORMAN, Major-General,
Secretary to the Government of India.

From the Secretary to the Government of India, Military Department, to the Adjutant-General, No. 1,127, dated Fort William, 23rd February 1872.

I AM directed to acquaint you, for the information of the Right Honourable the Commander-in-Chief, that the rule laid down in Government letter No. 468, dated 27th September 1869, that officers holding appointments in Native regiments as probationers for the Staff Corps, on being appointed during their year of probation to a department, vacate their probationary regimental appointments, applies only to officers serving with Native regiments on probation for the Staff Corps.

2. An officer already in the corps, and holding a permanent appointment in a Native regiment, will have a lien on that appointment until he is confirmed in any departmental appointment in which he may be oppointed to officiate.

(Signed) H. K. BURNE, Colonel,
Secretary to the Government of India.

From the Secretary of State for India to his Excellency the Right Honourable the Governor-General in Council, No. 123, dated London, 5th May 1870.

Para. 1.—I have received and considered in council your military letter No. 66, dated the 8th March 1870, forwarding a copy of a letter from the Adjutant-General on the subject of the temporary withdrawal of regimental officers for civil duties whether on probation or otherwise, with various papers, correspondence and minutes, which have been recorded on the subject.

2. The correspondence appears to have arisen out of a demand for young officers belonging to native regiments to serve for probation under the Foreign Department.

3. His Excellency the Commander-in-Chief, looking to the interests of the Native army, is of opinion that officers, so circumstanced, should, prior to obtaining civil employment on probation, resign the regimental appointments they hold.

4. Your Government, on the other hand, believe that as barely one regiment in twenty has an officer absent on probation, the embarrassments and grievances that might arise under the proposed rule are out of proportion to the advantages that could accrue under its adoption.

5. You do not believe that the decision you have arrived at in the matter will be productive of any real detriment to the efficiency of regiments, but have informed the Commander-in-Chief that any objection by his Excellency in a particular case, owing to the absence of other officers from a regiment or any other cause, would receive your most ready attention.

6. I entirely concur in these views. I consider it, as a general rule, important that the young officers joining the several departments, civil and military, should have their first training with a Native regiment. Moreover, as an officer's special aptitude for this or that description of employment does not develope itself immediately on entrance into the service, I should regret to see any *unnecessary* impediment placed in the way of a free transition from one branch to another; such an impediment would certainly be found in the rule proposed on the present occasion by his Excellency the Commander-in-Chief.

7. I observe, however, in the course of the discussion, incidental allusion to the case of an officer of higher rank, Lieutenant-Colonel Allen, absent from his regiment on temporary departmental employment for a protracted period, retaining a lien on his regimental appointment. Arrangements of this nature are to be regretted, unless made with the prospect and intention of permanently transferring the officer from his regiment to the department within a reasonable time.

8. There is obviously a marked difference in this respect between the cases of the younger officers, of whom one in each regiment has been appointed with a view to the formation of a reserve for the general purposes of the service, and those holding the higher regimental positions; and I would suggest to your Lordship that some rule might be laid down with advantage under which, while the absence of the former from the regiment (retaining his position therein) shall be limited to the period laid down for the departmental probation, still more stringent rules should be prescribed with a view to confining within a narrow limit the absence, with the same privilege, of officers filling the higher regimental positions, who, like Lieutenant-Colonel Allen, may be required to act for departmental officers, but not on departmental probation.

(Signed) ARGYLL.

No. 253, *dated* 14*th June* 1870.—Copy of the foregoing forwarded to the Adjutant-General for the information of the Commander-in-Chief with reference to Colonel the Hon. F. Thesiger's letter, No. 1673E, dated 18th August 1869, and previous correspondence, and with the request that his Excellency may be moved to suggest to Government the terms of any rule he thinks it desirable should be laid down to give effect to the view of the Secretary of State, as expressed in paragraph 8 of the above despatch.

(Signed) H. K. BURNE, Colonel,
Secretary to the Government of India.

From the Adjutant-General in India to the Secretary to Government, Military Department, No. 1371E, dated Simla, 18th July 1870.

I AM directed by the Commander-in-Chief to reply to your letter, No. 253, dated the 14th ultimo, on the subject of the removal of officers from Native regiments for employment in non-military departments.

2. With reference to your letter, No. 255, of the same date, on the transfer of Lieutenant E. Durand for employment under the Punjab Government, I am to observe that owing, his Excellency believes, to want of sufficient explicitness in his instructions, his Excellency's difficulty in relinquishing the services of Lieutenant Durand was not correctly conveyed in my letter, No. 935, of 4th ultimo.

Lieutenant Durand had been sufficiently long in the 12th Bengal Cavalry to render himself extremely useful to his commanding officer, who had taken much pains in his instruction, and felt it a very great loss to part with him, as four officers of the regiment were absent on leave to Europe, viz., the 2nd in command, the 2nd squadron officer, the 3rd squadron officer, and the adjutant; leaving Colonel Gough with only three officers for regimental duty.

The Commander-in-Chief therefore felt obliged to express the inconvenience under which he met the demand for Lieutenant Durand's services, although by the omission, as explained above, his Excellency's intentions were not exactly conveyed.

3. Regarding Lieutenant and Adjutant Hallet, of the 1st Native infantry, applied for in your letter 210 of 16th May and 254 of the 14th ultimo, the objection of his Excellency arose from the fact that the commanding officer, the 2nd in command, and the 1st wing subaltern, were on furlough.

The officiating wing officer, Captain Angelo, had just joined from civil employment, and was unacquainted with the regiment. The 2nd wing subaltern, on probation, was at Calcutta, engaged in studying the Native languages. Thus, there were only four officers present who knew the regiment. Of the two attached captains, one has not passed in the language, and neither can be considered other than a reserve. They cannot be considered as part of, or be expected to take much interest in, a regiment which they naturally must desire to leave if they can obtain any appointment. They are both at present at Calcutta, studying the native language.

His Excellency cannot well imagine a case in which the adjutant could be less easily spared.

4. In the case of Lieutenant Massy, 23rd Punjab Infantry, Colonel Chamberlain wrote in the most urgent way to retain his services; but as that young officer was 2nd wing subaltern, which office his Excellency understands to have been specially constituted as a reserve for supplying the miscellaneous departments, the Commander-in-Chief was unable to offer any objection to his removal.

5. In a memorandum, dated 15th March 1870, of the late Commander-in-Chief, on the localization of the Native regiments, Sir William Mansfield observed—"Such is the object (to ensure a "real connexion or bond between officers and sepoys) in which the Commander-in-Chief receives "but slender aid from other authorities, when objection is taken to the abstraction of good "regimental officers for the performance of duties under the civil administration; sometimes in "cantonments, sometimes in situations for which no military training is in the least required." It is certainly true, that when the principle of establishing a firm bond between officers and men, to which, with the Lieutenant-Governor of the Punjab, his Excellency attributes the highest importance, fails in practice, the fault lies not in our system but with the authorities who have no thought or care for real military interest, but consider only the passing convenience of their administrations and departments.

6. The late Commander-in-Chief was requested, in letter of 30th March, No. 1482, from the Secretary to Government to the Adjutant-General, to favour Government with a detail of the instances which have led to the statement above referred to. To this Sir William Mansfield replied by memorandum, "that it was inexpedient to revert to particular instances, the papers not "being available; but that the cases to which he referred must be quite fresh in the recollec-"tion of Government," &c.

7. On the 14th June, the secretary to Government again reverts to the subject, stating that the Government had hoped to receive, in reply to the letter No. 1,482, a statement of the instances which led to the remarks of Sir William Mansfield; but as this was not supplied, the secretary to Government furnishes a list of officers withdrawn for civil employ during the five years of Sir William Mansfield's command, and begs to know if there are any other officers than those indicated in the margin of paragraph 4 to whose removal his Excellency offered objection.

8. The Commander-in-Chief is not aware that his Excellency Sir William Mansfield recorded objections to the removal of any other officers, but has received information which has been to a certain extent confirmed by his own observation, that Sir William Mansfield made a point of complying with the wishes of Government regarding officers, both as to relinquishing officers for civil departments, and employing officers returned from those departments when no longer serviceable there, until he felt absolutely compelled, for the sake of the efficiency of the army, to represent the injury it was suffering.

9. It will be seen that of the officers withdrawn from regiments, shown by your list, 21 were adjutants and quartermasters, and six were wing officers and second in command. That is, one half of the officers withdrawn were of great importance to the well-being of regiments; or, it may be said, that during Sir William Mansfield's time of command nearly one half of the infantry regiments lost their adjutants and quartermasters.

10. Of 22 officers applied for in 1869–70, eight were holding the places of adjutant and quartermaster.

11. The following extracts are not isolated cases, in which the disadvantage of the system of withdrawing valuable officers from regiments has been deprecated by commanding officers:

"This continual change of officers is the root of all the evil in the Native army, and to show you how it affects some regiments, I have only to mention that this regiment has had 75 officers appointed to it since it was raised in 1857."

12. Another commanding officer writes:—

"This is one great drawback in wing subalterns of the present day, who only come into the regiment with the hope of leaving it as soon as any other appointment can be procured, and so can be expected to care little for the corps and its institutions."

13. From his Excellency's recent inspection of the regiments in the Punjab, he can safely say, that whenever a serious deficiency came to his notice, it was caused by officers received back from non-military departments.

In the most recent case, the officers of a regiment were irritated to a state very close upon insubordination, and considerable cause for discontent given to the Native officers, by the injudicious conduct of a commanding officer who had been long in civil employ, and had been returned to the Commander-in-Chief for military duty.

14. In the regiment in question, the average time of service of the officers with the regiment is three years. The commanding officer, now on leave, stated that 50 officers had passed under his command since he raised the regiment 12 years ago, which would give the average of 18 months for each officer. Whatever may have been the cause of this evil, it is aggravated in the worst form when the smartest executive officers of regiments are selected by Government and removed to civil employ, notwithstanding the remonstrance of the Commander-in-Chief.

15. When the Commander-in-Chief has received evidence that the former evil of the withdrawal of officers from regiments is again at work, that young officers do not take interest in their regimental duties because their thoughts are fixed on staff employment; when his Excellency finds that the tempting offer of employment is made to regimental officers direct from the Government, a proceeding which cannot fail to divert an officer's thoughts from his military duties, and renders it unlikely that he will contentedly continue in them, should it be found necessary to retain him; when the Commander-in-Chief finds that the Government does not help him in utilising the large body of unemployed young officers, by seeking for a portion of the civil staff from among those fully qualified in the languages, but perseveres in demanding the services of those whom he deems essentially necessary for the efficiency of regiments, the Commander-in-Chief is compelled to sympathise with the feeling which is expressed by Sir William Mansfield in the 23rd paragraph of his memorandum above quoted.

16. His Excellency believes that at present the Native army is thoroughly loyal, though there are doubtless individuals still in the ranks who sympathised with, if they did not actually participate in, the Mutiny; but there do exist causes of discontent in certain cases, such as delay in just compensation for losses of necessaries, or horses on field service; hardships and expense entailed in regard to hutting in regimental lines; the retrenchment after long intervals of compensation judged by the Account Department to have been improperly given. These things must cause irritation, which will be aggravated if there is not a cordial confidence between the men and their European officers.

17. The Commander-in-Chief feels that it is due to the Government that he should not be silent, when he believes that they are falling into the measures which to a considerable extent prepared the Bengal army for the events of 1857.

18. With regard to the Secretary of State's letter, No. 123 of the 5th May last,* the Commander-in-Chief believes that it related more particularly to the objection made by the late Commander-in-Chief to the officers transferred to civil employ remaining on the muster-roll of regiments.

* Forwarded with Military Department docket, No. 253, of the 14th June 1870.

19. The eighth paragraph of the letter from the Secretary of State is as follows:—

"There is obviously a marked difference in this respect between the cases of the younger officers, of whom one in each regiment has been appointed, with a view to the formation of a reserve for the general purposes of the service, and those holding the higher regimental positions," &c.

20. It does not appear to his Excellency the Commander-in-Chief that the above paragraph could have been intended to sanction an unreserved demand on the executive staff of regiments, when the wants of the civil departments could be met from the very reserve that was established for the purpose, or by the officers unprovided with appointments, and fully qualified in the Native languages, of whom there are doubtless many, both in the numerous lists laid before Government, of those belonging to the Bengal army, and also of the armies of Madras and Bombay, who would gladly take employment in the civil departments under the Government of India.

21. The Commander-in-Chief believes that a more liberal employment of the officers of Madras and Bombay would be in accordance with the views of the Governor-General in Council.

22. His Excellency cannot forget that the withdrawal of officers from regiments for staff employ, and the decline of the interest of officers in their military duties, caused by their being led to look to civil employment, was prominently brought forward in the parliamentary inquiry as one of the causes leading to the Mutiny.

23. With regard to the concluding portion of the eighth paragraph of despatch from the Right Honourable the Secretary of State, No. 123 of 5th May, the Commander-in-Chief would suggest, for the consideration of Government, the following rules:—

(1.) That no officer should remain on the muster rolls of regiments more than one year after his transfer to civil employ.

(2.) That no portion of the staff salary of regimental appointments should be drawn by officers on probation in the civil departments.

(3.) That when officers are required for civil departments, application be made by the Commander-in-Chief to ascertain if the officer's services can be spared, before direct communication is entered into with the officer concerned; as the result of a direct application to the officer himself from Government is likely to cause disappointment and to make him discontented with his military duties, if the Commander-in-Chief should find that he could not be spared.

(4.) Officers of grades superior to wing subaltern or squadron subaltern to be removed from the muster roll of their regiments after six months.

(Signed) FRED. THESIGER,
Adjutant-General.

From the Secretary to the Government of India, Military Department, to the Adjutant-General, No. 499, dated Simla, 23rd September 1870.

WITH reference to your communication marginally noted, and to previous correspondence regarding the withdrawal of officers from regimental appointments for civil or other staff employment, I am desired to convey to you the following remarks, for the information of the Commander-in-Chief.

No. 1371E, dated 18th July 1870.

2. The letter from this department, No. 675 of the 28th July 1869, which replied to a somewhat similar remonstrance from the late Commander-in-Chief, was, with the connected papers, and accompanied by minutes on the subject recorded by the Governor General, Sir William Mansfield and by Sir H. Durand, forwarded for the consideration and orders of Her Majesty's Government.

3. It was then intimated that "while giving full weight to the opinion of the Commander-in-"Chief, the Government of India were unable to concur in the principle which his Excellency "desired to establish, that officers must, prior to obtaining civil employment on probation, resign the "military appointments they held; but that, on the contrary, they were of opinion that, considering "the small number of officers so absent on probation, the embarrassment and grievances that "might arise under the proposed rule were out of proportion to the advantages that could accrue "under its adoption."

4. It was added, that the decision of the Government of India in this matter would, it was felt sure, be productive of no real detriment to the efficiency of regiments, while any objections to the withdrawal of officers in particular cases would receive ready attention.

5. This correspondence was acknowledged by the Right Honourable the Secretary of State for India, in a despatch No. 123 of the 5th May 1870, a copy of which was transmitted to you under my docket No. 253 of the 14th June last.

6. In this reply, the Secretary of State expressed entire concurrence in the views of the Government of India, adding that he would regret to see any unnecessary impediment placed in the way of a free transition from one branch of the service to another.

7. At the same time, his Grace acknowledged that in the case of the higher regimental posts, some more stringent limits might properly be placed upon the period during which officers filling such positions should, if withdrawn for civil employment on probation, be allowed to retain a lien upon their regimental appointments.

8. The views thus expressed appear to the Governor-General in Council to be clear and decisive, and to meet the case under review most completely; and under these circumstances, his Excellency in Council cannot but think it most inexpedient and undesirable to revive the discussion of a question so recently decided after careful and mature consideration.

9. The Governor-General in Council will ever esteem it a paramount duty to support to the utmost the efforts which may be made by the Commander-in-Chief for the maintenance of the discipline and efficiency of the army; but his Excellency in Council cannot consent to forego his right as head of the Government to select any officer whom he may deem best qualified to fill posts in the civil administration of the country, or other important positions under the Government of India.

10. I am to invite the attention of Lord Napier of Magdala to the important fact, that during the last five years the number of officers taken from the fixed establishment of regiments under his Excellency's orders, for civil employment, has not exceeded about 10 per annum from an establishment of 68 regiments of cavalry and infantry, with a permanent establishment of 476 officers.

11. This can hardly be deemed excessive, and conclusively shows that the action of the Governor-General in Council in this respect cannot seriously have interfered with the efficiency of the army.

12. As regards the propositions with which your letter under acknowledgment concludes, I am desired to state as follows :—

I. The Governor-General in Council concedes the establishment of a rule, that no officer removed from the fixed establishment of a regiment to civil employ shall retain a lien on his regimental appointment for more than one year, or until the *first examination* held after the expiry of the full year of probation.

As examinations are held half-yearly only and at stated periods, this provision is necessary.

II. The proposal that no portion of the staff salary of regimental appointments be drawn by officers on probation in the civil department, is one to which the Governor-General in Council is disposed to consent, but it will be separately considered in the departments concerned, and final orders hereafter issued.*

III. The Governor-General in Council cannot concur in the suggestion that no officer be offered an appointment, until it has been previously ascertained that the Commander-in-Chief is able and willing to give his services.

The Viceroy must retain in his own hands the power of selecting those officers whom his Excellency may deem most fitted for the situations they may be required to fill.

But the Governor-General in Council will always consider, with deference and care, any representations that the Commander-in-Chief may deem it his duty to make in regard to the withdrawal of particular officers.

IV. The proposition that officers of grades superior to those of wing or squadron subalterns should not be allowed to retain their regimental appointment for more than six months, if on probation for civil employ, appears to the Governor-General in Council to be one that would bear hardly on the officers concerned, and his Excellency in Council considers the rule laid down on the first proposition sufficiently to meet the case.

13. The Governor-General in Council trusts that these views will be accepted by Lord Napier of Magdala, so that any further reference to Her Majesty's Government, on a question so recently decided by the Secretary of State, may be avoided.

(Signed) H. K. Burne, Colonel,
Secretary to the Government of India.

From the Secretary to the Government of India, Military Department, to the Adjutant-General, No. 500, dated Simla, 23d September 1870.

In continuation of my letter No. 499, of this date, regarding the withdrawal of officers from regimental appointments for civil or staff employment and with reference to the particular case of Lieutenant C. E. Hallett, 1st Native infantry, who has been nominated by the Viceroy to the Commissariat Department,* I am desired to acquaint you, for the information of the Commander-in-Chief, that it is with much regret that the Governor-General in Council is unable to accede to his Excellency's recommendation that Lieutenant Hallett's appointment should be waived.

* Docket No. 337 A, dated 15th September 1870.

2. For a department, the efficiency of which is so important to the army as the commissariat, and in which special qualifications are required to make an officer render useful service, while many officers do not desire to enter it, the selection is but limited; and under these circumstances the Governor-General in Council is compelled, though with much reluctance, to decide that Lieutenant Hallett's nomination to the department should hold good.

(Signed) H. K. Burne, Colonel,
Secretary to the Government of India.

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* This was done in the following order:—

"*G. G. O. No.* 179, *dated* 22*nd February* 1871.—The following notification from the Financial department is re-published for general information:—

Leave and Allowances.

No. 1002, *dated Fort William, the* 16*th Febuary* 1871.—"The Governor General in Council is pleased to rule that an officer of a Native regiment joining the civil department on probation shall draw no portion of the staff pay of his regimental appointment for the term of his probation."

Appendix D.

Return showing the Number of Officers taken from Regiments for the Army Departments and for Civil and Political Employ during the Five Years ending the 31st December 1874.

Rank.	1870.		1871.		1872.		1873.		1874.		Total.		Famine Relief.	Grand Total.	Remarks.
	Army Department.	Civil Employ.	Army Department.	Civil Employ.	Army Department.	Civil Employ.	Army Department.	Civil Employ.	Army Department.	Civil Employ.	Army Department.	Civil Employ.			
Ensigns -	—	1	—	—	—	—	—	—	—	—	—	1	—	1	Taken from a regiment not serving under the Commander-in-Chief.
Lieutenants	3	6	—	8	3	7	1	6	1	7	8	34	16	58	Includes 9 taken from regiments not serving under the Commander-in-Chief.
Captains -	—	1	—	5	—	4	1	4	3	2	4	16	16	36	Includes 5 do. do.
Majors -	—	—	—	—	—	—	—	—	—	—	—	—	1	1	
Lieut.-Cols.	—	—	—	—	—	—	—	—	—	—	—	—	1	1	
Colonels -	—	—	—	1	—	—	—	—	—	—	—	1	—	1	
Total -	3	8	—	14	3	11	2	10	4	9	12	52	34	98	Includes 15 officers taken from regiments *not* serving under *the* Commander-in-*Chief.*

Appendix E.

Officers who were returned to Military Duty under the Commander-in-Chief during the Five Years ending the 31st December 1874.

Rank	1870.			1871.			1972.			1873.			1874.			Total.			Grand Total.
	From Army Departments.	From Civil Employ.	From Regiments not under Commander-in-Chief's orders.	From Army Departments.	From Civil Employ.	From Regiments not under Commander-in-Chief's orders.	From Army Departments.	From Civil Employ.	From Regiments not under Commander-in-Chief's orders.	From Army Departments.	From Civil Employ.	From Regiments not under Commander-in-Chief's orders.	From Army Departments.	From Civil Employ.	From Regiments not under Commander-in-Chief's orders.	From Army Departments.	From Civil Employ.	From Regiments not under Commander-in-Chief's orders.	
Ensigns -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lieutenants	—	1	—	—	2	—	1	2	—	—	—	1	—	—	—	1	5	1	7
Captains	—	8	—	—	4	—	1	1	6	2	4	1	1	1	1	4	18	8	30
Majors -	—	2	—	—	2	—	—	2	2	—	2	—	—	—	—	—	8	2	10
Lieut.-Cols.	—	5	—	—	1	—	1	2	—	—	3	—	—	1	—	1	12	—	13
Colonel -	—	—	—	—	1	—	—	1	—	—	—	—	1	1	—	1	3	—	4
Total -	—	16	—	—	10	—	3	8	8	2	9	2	2	3	1	7	46	11	64

Appendix F.

Nominal Return of Officers returned to Military Duty under His Excellency the Commander-in-Chief during the Years 1870–71 ·72–73–74.

N.B.—Officers whose names are marked with an asterisk (*) were remanded to military duty on account of *inefficency*; those marked with the double asterisk (**) on account of *misconduct*.

Rank and Names.	Corps.	Date of going into Civil Employ.	Date of return to Military Duty.	Length of Service. When posted to Civil Employ.	Length of Service. When returned to Military Duty.	Cause or occasion of reverting to Military Duty.	How employed on 1st June 1875.
1870.				Yrs. Ms.	Yrs. Ms.		
Lieut.-Col. C. G. B. Bacon -	Staff Corps -	20th March 1869	9th Dec. 1870 -	27 10	29 6	By return to duty of the permanent cantonment magistrate of Chuckrata.	*Retired, 30th November* 1874.
„ H. Rose* -	„ -	8th April 1852 -	13th „ „ -	9 10	28 6	Remissness in the performance of his duties in the P. W. Department.	Doing duty at Meerut.
„ C. Reay - -	„ -	22nd April 1862 -	13th April „ -	19 7	27 7	Reductions in the Bengal police -	„ „
„ H. Grant -	„ -	2nd July 1869 -	9th Feb. „ -	25 10	26 5	Resigned appointment of assistant cantonment magistrate, Morar, to avoid serving under a junior officer.	*Died at Simla on the 5th June* 1871.
„ G. B. Fisher -	Bengal Infantry	2nd Dec. 1862 -	15th „ „ -	6 0	13 2	Reductions in the Bengal police -	Doing duty at Meean Meer,
Major F. N. Miles - -	Staff Corps -	9th July 1858 -	13th April „ -	11 7	23 4	„ „ „ - -	Residing in Europe under the provisions of G. G. O. No. 797, dated 1st August 1872.
„ W. Jackson* -	„ -	7th Nov. 1855 -	13th Dec. „ -	5 11	21 0	Remissness in the performance of his duties in the P. W. Department.	Doing duty at Cawnpore.
Captain E. E. B. Bond** -	„ -	4th June 1869 -	1st July „ -	11 0	18 1	Removed from the Punjab police for misappropriating public money.	*Removed from the service, 11th September* 1871.
„ S. A. T. Judge -	„ -	23rd April 1862 -	13th April „ -	9 4	17 4	Reductions in the Bengal police -	Sub-Assistant Comsy.-Genl., 2nd class, Gwalior.
„ A. Tullock - -	„ -	3rd March 1863 -	„ „ „ -	10 1	17 3	„ „ „ - -	Doing duty at Debrooghur, Assam.
„ E. S. Fox. - -	„ -	28th July 1869 -	19th July „ -	16 1	17 1	Resigned appointment in the Forest Department on account of ill health.	Doing duty at at Barrackpore.
„ R. F. Angelo* -	„ -	23rd Dec. 1867 -	18th Jan. „ -	13 0	15 0	Removed from the P. W. Department for incompetency.	Fort Adjutant, Chunar.
„ A. D. Butter - -	„ -	4th July 1862 -	10th Oct. „ -	5 7	13 10	Reductions in the Survey Department.	Brigade Major, Eastern Frontier District.
„ W. E. Chambers -	„ -	28th March 1861	13th April „ -	4 1	13 2	Reductions in the Bengal police -	Station Staff Officer, Saugor.

„ A. T. Davis -	Gl. List, Infantry	28th Dec. 1866 -	14th Jan. „ -	7	2	10	3	Resigned his appointment in the N. W. P. police, as it was about to be abolished.	1st wing subaltern, 5th Native Infantry.
Lieut. J. T. Whish* -	Staff Corps -	21st August 1866	23rd Feb. „ -	6	5	9	11	Removed from the P. W. Department for inefficiency.	Quartermaster, 16th Native Infantry.
1871.									
Colonel F. W. Baugh -	Bengal Infantry	1st February 1864	22nd March 1871	25	1	32	2	Resigned his appointment in the Forest Department.	Doing duty at Almorah.
Lieut.-Col. G. Faithful* -	Staff Corps -	16th Nov. 1846 -	21st Jan. „ -	5	11	30	1	Removed from the British Burmah Commission on account of unfitness.	*Retired, 11th April* 1875.
Major W. A. Garden -	„ -	26th Sept. 1867 -	13th Oct. „ -	17	9	21	10	Abolition of the appointment of Inspector of Schools, Kemaon Circle.	Officiating 2nd in command, 3rd Goorkha regiment.
„ E. A. C. Lambert -	„ -	8th May 1861 -	22nd „ „ -	9	5	19	10	Vacated appointment of cantonment magistrate, Umballa, by exceeding furlough.	Officiating cantonment magistrate, Rawal Pindi.
Captain R. T. Hare* -	„ -	4th Feb. „ -	21st June „ -	5	2	10	4	Removed from civil employ, Punjab, for abuse of his power as a magistrate.	Attached to the 24th Native Infantry.
„ W. E. Rutherford* -	„ -	6th Dec. 1866 -	26th Oct. „ -	8	2	13	1	Resigned civil employ in Assam. Pronounced by the Lieutenant Governor to have failed in his duty as a magistrate.	Officiating 1st wing subaltern, 42nd Native Infantry, and Station Staff Officer, Gowhatty.
„ R. H. Salkeld -	Gl. List, Infantry	27th April „ -	18th Jan. „ -	6	4	11	1	Resigned appointment in the Hyderabad Commission.	1st wing subaltern, 16th Native Infantry.
„ J. W. Taylor* -	Staff Corps -	30th Oct. 1867 -	24th „ „ -	8	11	12	1	Qualifications not such as rendered his retention in the P. W. Department desirable.	*Died at Aden, 20th July* 1874.
Lieut. H. B. Hanna -	„ -	10th Dec. „ -	25th Oct. „ -	7	11	11	10	From temporary employ in P. W. Department.	Deputy Assistant-Quartermaster General.
„ M. H. Court* -	Gl. List, Cavalry	25th March „ -	20th Jan. „ -	7	2	11	0	Not considered to possess the necessary qualifications for civil employ. Was officiating assistant to the agent to the Governor-General, Rajpootana.	Station Staff Officer, Seetapoer.
1872.									
Colonel G. Verner - -	Staff Corps -	9th June 1870 -	19th July 1872 -	39	11	42	0	Return to duty of permanent agent to the Governor-General with the Ex-King of Oude.	In Europe on furlough.
Lieut.-Col. T. W. Holland -	„ -	May 1868 -	28th Jan. „ -	23	11	27	8	Was employed in compiling military regulations when he went on furlough. Placed at the Commander-in-Chief's disposal on his return.	In Europe on furlough.
„ W. E. Marshall*	„ -	23rd Nov. 1855 -	19th Oct. „ -	11	0	27	10	Removed from the P. W. Department for unfitness.	At the disposal of the Home Department.

Rank and Names.	Corps.	Date of going into Civil Employ.	Date of return to Military Duty.	Length of Service. When posted to Civil Employ.		Length of Service. When returned to Military Duty.		Cause or occasion of reverting to Military Duty.	How employed on 1st June 1875.
				Yrs.	Ms.	Yrs.	Ms.		
Lieut.-Col. T. M. Shelley -	Bengal Infantry	1st April 1872 -	23rd July 1872 -	21	2	21	6	Resigned appointment in the Barrack Department.	Residing in Europe under the provisions of G. G. O. No. 797, dated 1st August 1872.
Major S. S. Boulderson -	Staff Corps -	17th June 1862 -	27th Dec. „ -	15	6	26	0	Forfeited civil appointment in Oude by over-staying furlough.	Doing duty at Meerut.
„ G. A. Brown -	„ -	30th Sept. 1871 -	5th June „ -	24	9	25	6	Breaking up of the Looshai Coolie Corps.	Officiating Commandant 16th Native Infantry.
„ P. H. F. Harris -	„ -	11th March 1861	6th Feb. „ -	10	3	21	2	Returned to military duty at his own request from employment in the Punjab police.	Second in command, 11th Native Infantry.
„ H. L. Millett** -	„ -	12th Sept. 1856 -	3rd Aug. „ -	4	8	20	6	Removed from the Punjab Frontier Force for misconduct.	*Retired, 28th February* 1873.
Capt. & Bt.-Maj. C. E. Bates	„ -	25th April 1872 -	24th Oct. „ -	16	0	16	6	Return from special duty in Cashmere -	In Europe on medical certificate; shown as attached to 17th Native Infantry.
Captain P. Roddy* - -	Unattached -	1st April „ -	10th „ „ -	14	1	14	7	Unfitness for the Barrack Department -	Station Staff Officer, Roorkee.
„ F. H. Hood -	Staff Corps -	2nd October 1871	6th May „ -	16	1	16	8	Breaking up of the Looshai Coolie Corps.	*Died at Jalpigoorie, 26th April* 1875.
„ C. E. D. Branson -	Gl. List, Infantry	30th Sept. „	April „ -	12	1	12	7	„ „ „	Assistant Garrison Instructor, Sialkot.
„ A. P. Broome** -	„ „	1st March 1864 -	3rd Aug. „ -	4	5	12	10	Removed from the Punjab Frontier Force for misconduct.	Officiating 2nd wing subaltern, 31st Native Infantry.
„ F. W. Crohan -	„ „	30th Sept. 1871 -	1st April „ -	11	8	12	2	Breaking up of the Looshai Coolie Corps.	Station Staff Officer, Benares.
„ C. H. Palmer -	Staff Corps -	27th Oct. „ -	5th June „ -	13	4	14	0	„ „ „	1st wing subaltern, 10th Native Infantry.
„ A. F. Taylor -	„ -	12th Nov. 1866 -	16th Jan. „ -	7	0	12	2	Vacated appointment of Adjutant Malwah, Bheel Corps, on promotion to Captain, and replaced at Commander-in-Chief's disposal at his own request.	2nd wing subaltern, 16th Native Infantry.
Lt. & Bt.-Capt. R. J. Wimberley	„ -	15th Dec. 1861 -	6th March „ -	2	3	12	6	Resigned appointment in the Bengal police.	1st assistant superintendent, Port Blair and the Nicobars.

Lieut. E. E. Gibson* -	„ -	8th April 1864 -	5th Jan. „ -	2	8	11	5	Disqualified for political employment. Was Boundary Settlement Officer in Bundelkund.	In Europe on furlough. Shown as attached to 32nd Native Infantry.
„ G. J. Hare - -	„ -	9th Feb. 1872 -	19th March „ -	7	5	7	6	Temporarily employed in the Commissariat Department during the Looshaie Expedition.	Adjutant, 22nd Native Infantry.
1873.									
Lieut.-Col. G. F. Carnegie -	„ -	3rd March 1873 -	22nd April 1873 -	30	9	30	11	Resigned appointment of officiating cantonment magistrate of Barrackpore.	*Retired, 1st April 1875.*
„ M. Thompson -	Bengal Infantry	25th June 1872 -	11th June „ -	18	6	19	6	Return to duty of the permanent political agent, Munipore.	Political agent, 3rd class; agent to the G. G. with the Ex-King of Oude.
„ A. Elderton -	Staff Corps -	18th March „ -	23rd April „ -	28	2	29	3	Resigned appointment of acting cantonment magistrate, Dum Dum, on account of ill health.	Acting cantonment magistrate, Barrackpore.
Major C. C. Taylor - -	„ -	13th Jan. 1869 -	9th Jan. „ -	18	1	22	11	Permitted to resign the appointment of A. D. C. to the Governor-General.	*Retired, 10th April 1875.*
„ F. P. Luard* -	„ -	9th July 1864 -	5th June „ -	11	9	20	8	Removed from employment under the Foreign Department, in consequence of bad health and failure to pass the examinations.	Doing duty at Allahabad.
Captain G. F. Graham -	„ -	16th August 1871	17th July „ -	17	7	19	6	Return to duty of the officer for whom he was acting in the Stud Department.	Station Staff Officer, Barrackpore.
„ F. Wheeler -	„ -	13th April 1869 -	13th Nov. „ -	14	10	19	5	Do. as cantonment magistrate, Cawnpore.	Officiating cantonment magistrate, Cawnpore.
„ W. E. Chambers.	„ -	30th April 1872 -	8th Aug. „ -	15	2	16	6	Permitted at his own request to resign his appointment in the Hyderabad Contingent.	Station Staff Officer, Saugor.
„ J. Bray - -	Unattached -	1st April „ -	15th „ „ -	13	11	15	3	Resigned appointment in the Barrack Department in view to obtaining change of climate.	Doing duty at Jullundur.
„ H. W. J. Senior - -	Staff Corps -	5th Sept. 1870 -	2nd May „ -	11	6	14	2	Return to duty of the officer for whom he was acting as Superintendent of Jails, Meerut.	2nd wind subaltern, 34th Native Infantry.
„ W. A. Lawrence -	„	23rd June 1864 -	7th May „ -	3	5	12	3	Resigned civil employment under the Government of Bengal.	In Europe on furlough. Shows as attached to the 1st Bengal Cavalry.
„ S. A. Swinley -	G. List, Cavalry	21st Aug. 1873 -	23rd Dec. „ -	12	4	12	8	No reason assigned. Was officiating under the Foreign Department temporarily.	Station Staff Officer, Nowgong, Bundelkund.

Rank and Names.	Corps.	Date of going into Civil Employ.	Date of return to Military Duty.	Length of Service.				Cause or occasion of reverting to Military Duty.	How employed on 1st June 1875.
				When posted to Civil Employ.		When returned to Military Duty.			
				Yrs.	Ms.	Yrs.	Ms.		
Lieut. and Bt. Capt. M. J. King-Harman	Staff Corps -	2nd Jan. 1867 -	10th May 1873 -	6	3	12	7	Transferred, at his own request, from the Punjab Frontier Force to service under the C. in C.	Officiating Deputy Assistant Quartermaster General, Meerut Division.
1874.									
Colonel G. R. Cookson -	Bengal Infantry	26th Feb. 1852 -	4th Oct. 1874 -	14	0	36	7	Being over 55 years of age. - -	*Retired*, 1*st April* 1875.
„ G. G. Anderson -	„	April 1872*	24th April „ -	32	4	34	4	Resigned appointment in the Pay Department in consequence of supersession.	Doing duty at at Dehra.
Lieut.-Col. C. R. Shaw* -	Staff Corps -	23rd Feb. 1858 -	2nd Dec. „ -	10	2	27	0	Removed from the Oude Commission for incompetency.	Doing Duty at Lucknow.
Captain E. R. Ives - -	G. List, Infantry	29th May 1872 -	28th Feb. „ -	12	7	14	2	Resigned appointment in the Hyderabad Contingent.	Station Staff Officer, Umritsur.
„ W. J. Maitland* -	Staff Corps -	11th May 1867 -	12th „ „ -	8	5	15	2	Not fitted for civil employ. Was in the Assam Commission.	Officiating 1st wing subaltern, 44th Native Infantry.
„ H. W. J. Senior -	„	10th Feb. 1874 -	11th Sep. „ -	14	11	15	6	From temporary employ in the Commissariat Department.	2nd wing subaltern, 34th Native Infantry.

* It is necessary to remark that Colonel Anderson had been officiating in the Pay Department, off and on, since February 1859, occasionally doing general duty at stations. The date above given is that of his *last* appointment to the Pay Department.

Appendix G.

Letter from the Adjutant-General in India to the Secretary to Government, Military Department, No. 2702A, dated 18th August 1873.

"In reply to Military Department letter No. 23, dated the 2nd August 1872 $\frac{\text{"Staff Corps"}}{\text{Probationers}}$ I am directed to forward, for submission to Government, the accompanying minute by the Right Honourable the Commander-in-Chief in India, on the subject of the appointment of unemployed but qualified officers to positions rendered immediately or remotely vacant by casualties."

I have, &c.
(Signed) Fred. Thesiger,
Adjutant-General.

Minute by his Excellency the Commander-in-Chief in India.

It is not easy to say exactly how it will be best to give effect to the wishes of the Secretary of State, as conveyed in the extract from his despatch dated 20th June 1872, as it must depend upon the nature of the employment that is vacated by the Staff Corps officer becoming non-effective, whether it is possible to fill it by one of the unemployed officers.

It may very possibly happen, on an appointment falling vacant in a regiment, that the next seniors have indisputable claims and suitability for each grade in succession, until the lowest one is arrived at, for which it is probable that the unemployed officer may, by age and rank, be unsuited either for the performance of its duties at the time, or for eventually acquiring the necessary qualifications.

It would be difficult to imagine that any proper administration could be carried on if it were obligatory to place an unemployed officer into some one of the vacancies that might occur from a casualty, whether he were fitted for it or not, supposing such kind of employment were civil or semi-military service.

It would be difficult also to maintain the efficiency of regiments possessing a small number of officers, whose duties require that they shall be thoroughly acquainted with the specialities of their men, if it were absolutely necessary to interpolate an officer merely because he was unemployed.

There are great varieties of age and qualification, as there are of corps, classes of men in regiments, and gradations of position. If these are disregarded, great loss of efficiency must happen.

Viewing the case at present, it is feared the mode proposed by the Secretary of State will not give very material relief, unless some such plan as the following be adopted, viz.:—

That Government should announce that vacancies in certain classes of employment, such as the Post Office, Cantonment Magistracies, Forest Department, &c., &c., shall in future be held available for such unemployed officers as choose to qualify for them, facilities for so doing being offered them.

For the Cantonment Magistrates, an examination in the Penal Code and Civil Regulations would be necessary.

For the Post Office, the rules of the Department.

For the Forest Department, a class might be formed under a competent officer of whom many must now be in the country.

If such announcements were made, it is probable that many of the unemployed officers would address themselves to qualify for that kind of service which they would prefer.

In all of the departments above mentioned the Government is paying sums, a portion of which would fully satisfy unemployed officers, while at present they go to uncovenanted servants, who will ultimately fill the pension lists in addition to the unemployed officers.

Of course it is understood that the Commander-in-Chief will himself seek every opportunity of finding regimental or staff employment for such unemployed officers as he can place in suitable grades.

(Signed) Napier of Magdala,
General Commander-in-Chief in India.

Appendix H.

Memorandum by his Excellency the Commander-in-Chief in India on the Localization of Native Regiments.

I regret that it is out of my power to admit the soundness either of the argument or of the conclusions arrived at by Sir Donald McLeod, as stated in Major Black's letter No. 346 of 3rd September 1869.

It is assumed in that communication that the so-called localization of Native regiments will add to their efficiency, to the attachment of the sepoys to their officers, and therefore to the safety of the sepoy army as a great State machine.

I submit that the facts of the old Bengal Army are opposed to this, as well as the experience which may be gathered in the armies south of the Nerbudda.

Prior to 1857, a great many localized corps existed, of which the names are familiar to the military department, and to all those who served in India before that date.

It was seen that all the contingents and corps, of whatever denomination, which were thus localized yielded to the temptation of the mutiny, and broke down quite as readily as the regiments of the regular army.

As to any superior efficiency which may be acquired by localized regiments, I would again submit that the notion is contrary to what might be expected, and is simply opposed to fact.

Thus the Hyderabad Contingent comes fairly under this head of localized corps.

I have never seen that contingent, but I have for many years past heard from very different but very trustworthy authorities, that the Hyderabad Contingent is by no means in a high state of discipline, instruction, and efficiency, as compared with other regiments, whether the officers or the sepoys are considered.

The Sind Horse, which have been so constantly the subject of fulsome eulogy, do not by any means show better, or display superior qualifications when they come to be seen with other troops in the field; indeed I have often heard the contrary affirmed.—*Vide* the experience of Persia and Abyssinia.

Our Assam regiments are notoriously below par. One General Officer after another has pointed out to me the necessity of bringing them into the general relief of the army, if any regard whatever is to be paid to their future military efficiency, this remark especially affecting the British officers of these regiments.

The mishap of Dewangiri was in truth directly owing to non-efficiency following on the principle of organization which Sir Donald McLeod would introduce into the whole army.

With regard to the Punjab Force, it may be said with absolute certainly and truth that its efficiency is much owing to the state of preparedness for war in which it is kept by the constant sight of watchful enemies beyond the border.

But I am told by those not unqualified to judge, that the force is not what it was in former days, and that its local character is beginning the course of deterioration which invariably attacks troops, sooner or later, when they are so constituted as to evade the supervision and criticisms of a great central authority, which is free from local bias. Major General Fitzmayer's late report on the artillery of the force, goes far to prove to me that the local command has somewhat failed in careful supervision, and that the Punjab Force now positively stands in need of a Commander who was not brought up in its ranks, and would bring new ideas to it.

It is well known that, while I do not wish to interfere with the special character of the Punjab Force, I think, indeed I may say I am certain, that if the Punjab Force is to retain, in time of peace, the efficiency it has preserved during a series of petty wars and campaigns, it must be brought under the central authority of the Commander-in-Chief.

With regard to Sir Donald McLeod's principle, it may finally be said that it would be possible to give effect to localization of divisions of the Native Army, had it anything like the strength it possessed in former days; but as we now have very slender battalions where formerly large brigades were kept up, and as the tendency is strong to reduce the Native Force still more, it may be simply asserted, without fear of contradiction, that it is impossible to entertain the project.

Bengal Proper does not afford soldiers. The same may be averred of the Central Provinces, and consequently, in order to find troops for such Provinces, we must maintain a force which is generally available for ordinary duty.

We have localized our Goorkha Regiments, because of the expediency of keeping Goorkhas in countries and climates similar to those in which they are bred.

But with our reduced Native Army, this has already been proved to be a great inconvenience, and if reduction of corps is to go further in the Bengal Army, I do not see how the Goorkha Regiments can long continue not to take a share in the general movement of the army, for peace duty, relief, &c., &c.

This difficulty seems to me entirely to divest Sir Donald McLeod's proposals of any real substance, and to be prohibitive of the special suggestions made by Lieutenant-Colonel Chamberlain in favour of his own regiment.

It is said by the Lieutenant-Governor that the present system of the Army conduces to destroy the bond formerly existing between the British officers and the sepoys, and that his plans suggest a remedy for this evil.

This must be a matter of opinion, but according to my experience, and the manner in which the patronage of this army has been conducted for a number of years (I cannot answer for the Punjab Force, with which I have had nothing to do), I am disposed to meet such assertions, which are often seen in the newspapers, with a direct negative. I think Sir Donald McLeod would hardly have committed himself to them, had he been aware of the watchful care with which, due regard being had to practical efficiency, it is sought to cause officers to keep to their regimental positions, to obtain advancement in their own corps, and therefore to ensure a real connexion or bond between officers and sepoys.

Such was the object of the continuation of officers in the place of adjutant and, lately, in that of quartermaster, after they had attained the rank of captain.

Such is the object, in which the Commander-in-Chief receives but slender aid from other authorities, when objection is taken to the abstraction of good regimental officers for the performance of duties under the civil administration, sometimes under civil officers, sometimes in cantonments, sometimes in situations for which no military training is in the least required.

It is certainly true that when the principle of establishing a firm bond between officers and men, to which, with the Lieutenant-Governor, I attribute the highest importance, fails in practice, the

fault lies, not in our system, but with authorities who have no thought or care for real military interests, but consider only the passing convenience of their administration and departments.

W. R. MANSFIELD, General,
Commander-in-Chief in India.

Calcutta, the 15th March 1870.

(True copy,)

P. S. LUMSDEN, Lieut.-Colonel,
Quartermaster-General.

APPENDIX I.

EXTRACT from "Historical Account of the Rise and Progress of the Bengal Native Infantry, from its first formation in 1757 to 1796." By the late Captain Williams, of the Invalid Establishment of the Bengal Army.

We are now arrived at the year 1796, which forms an important epoch in the history of the East India Company's army.

By the regulations then adopted, with the view, among other points, of amelioration and improvement in the situation of the European officers, that of giving to them an increased degree of promotion and rank, caused a total reformation of the Native corps in regard to the system of authority, interior economy, and payment of the troops.

The whole Native infantry establishment was condensed into 12 unwieldy regiments, of two battalions each; each battalion consisting of 10 companies (two grenadier and eight battalion companies), and each company of two Native commissioned, 10 non-commissioned officers, and 80 privates, as a peace establishment; and the complement of European officers was fixed at one colonel, two lieutenant-colonels, two majors, seven captains, one captain-lieutenant, 22 lieutenants, and 10 ensigns to each regiment. And thenceforward the principle of regimental rank and promotion (to the rank of major, inclusive) was adopted throughout the honorable company's army.

The field officers, captains, and the requisite proportion of lieutenants were appointed to command the companies. The payment of the men was expressly confided to the officers commanding companies respectively, who were declared to be invested with the same authority as is exercised by captains in command of companies in European corps.

Monthly muster rolls, and corresponding pay abstracts were directed to be prepared by the officers commanding companies. A pay hawuldar, corresponding to pay-sergeant, was allowed to each company; and on every issue of pay, acquittance rolls, signed by every individual of each company in testimony of having received his full and just demands, were ordered to be delivered to the commanding officer of the battalion, by whom they are laid before the commanding officer of the regiment, and then lodged as records in the regimental office.

* * * * * * * * *

The fitness or suitability of the general principles of military arrangement comprised in the regulations of 1796 will not probably be questioned; but it is to be observed that the practical operation of them is rendered nugatory in a very important point by the operation of the collateral rules of the service. Under the previous system all the officers who were attached to corps were always present and effective with them (cases of sickness excepted), but especially those in whose individual hands the powers of authority and command were vested, and which was accordingly not liable to fluctuation or change. Whenever officers returned to Europe, which, however, but seldom happened, they resigned the service, and all officers employed as staff, and in every situation whatsoever out of the line of their regimental duty, were invariably struck off the strength of corps, and their places were immediately supplied by others.

Under the present arrangement, the proportion of field officers and captains, being those in whom the exercise and reponsibility of authority and control are essentially reposed, is that of 12 to 20 companies; yet small as even this number is, were they actually retained for the duties of their corps the theory and the practice would be somewhat assimilated; but the whole of the staff of the Government, and of the army, inclusive of a heavy commissariat, with the numerous officers on furlough in Europe, and those employed with local corps, and in all other situations whatsoever are borne on the strength as component parts of companies and corps,—so the result is that a very small portion of field officers and captains remains for the duties of the corps;* companies are consequently, for the most part, in the charge of subalterns temporarily, and changing, according to their occasional standing, under the course of events; and thus often devolving to the hands of very young officers whose professional nor local acquirements may not have at all qualified them for such a situation of authority over men to whose character, language, and habits they are yet more or less strangers.

Divided authority too, at best, is ill understood or conformed to by the people of India; and perhaps it may very fairly be doubted whether the reformation introduced by the regulations of 1796 has tended generally to improve the condition of the Native soldiery as it regards their satisfaction, contentment, and attachment to the service; or whether they were not better satisfied, upon the whole, under the old patriarchal system of battalions, commanded by a captain, who was always an old officer, experienced in the language, customs, and feelings of the men, which being duly appreciated, never failed to secure respect for authority and mutual

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* Under all those circumstances it has often happened that the officers of all ranks, present with their corps are not in the proportion of one to each company.

attachment. But it must be remembered that this becoming consideration for the character and military virtues of the troops requires a progressive course of fellowship and intercourse for its basis.

Other causes are also to be found for a diminished attachment to the service, or rather of the disposition to enter into it, which formerly prevailed amongst the most suitable classes of the community.

That such a diminution has taken place there seems little room to doubt. The improved condition of their landed property, and the security under which they enjoy their property in the various pursuits and avocations of life may very naturally have produced such a tendency. 2dly. The harassing and often offensive duties on which the regulars have of late years been employed, in the situation which more properly belongs to provincial corps and police establishments; in guarding jails; attending convicts on the roads, or from morning till night in the courts during the trial of prisoners, with a variety of other calls to which they are liable when employed at civil stations, more specially in the ceded and conquered provinces, as well as Benares, where the pressure of such duties has often precluded the annual indulgence of furlough to visit their families, than which the Native troops enjoy no higher gratification; these circumstances may no doubt be reckoned on as having likewise contributed to such a result; so irksome and laborious do such duties often prove, that so far from a state of peace being a state of comparative repose, it is quite the reverse; a Maharatta war, or other arduous campaign, is a jubilee to them, compared with the degrading turmoil of such anomalous employment.

It is true, that modifications have at different times been obtained with regard to some of the most offensive duties alluded to, when their feelings could no longer endure the impolitic and malevolent degradation to which they were exposed; but the regret is, that they ever should have been required—for the impression thus made may, as to the effect in question never be effaced.

A further cause may be stated, and that a very material one also, in the minds of those concerned. In former times, the men and their families derived a considerable degree of consequence from some members of the family being in the military service of the Company Bahadoor, with this further advantage, that in any case of litigation, injustice, or reference in regard to their agricultural or other domestic concerns, the influence or consideration derived from their situation always proved gratifying, and generally led to a prompt hearing and decision, without being obliged to wait indefinite and often very protracted periods of time, under the more tardy forms of judicial procedure which have of late years prevailed.

Thus the sepoy has lost all the advantages, or gratification of that description which he before enjoyed, and with them, perhaps, some portion of his respect for the character or consequence of his officers, who formerly, by letters of application (now interdicted by an ordinance of the local Government) to the civil authorities, generally obtained some favourable consideration toward those under their command, when the domestic concerns of the Native officers or men required any such reference. Nor will they soon forget the indignity offered in some instances to their European officers, and to themselves, by the civil process of summons or arrest having been executed within the limits of their camp or cantonments, on individuals against whom complaints may have been preferred, without the observance of any form of requisition, &c. to the commanding officer.

It may be further observed, that in times past the Native commissioned officers, especially the subadars at the head of companies, possessed more authority and influence than they now do with their respective companies, in proportion as they were more employed instead of European officers.

This consequence has further resulted from the change in the interior economy of the corps, by which the more immediate interference in the control and management of the companies is vested in the hands of the European officers by whom they are commanded and paid: the routine duties of the pay and orderly hawuldars of companies, have necessarily absorbed in a material degree the constant intercourse between the companies and the officers commanding them, of which the subadars and the Native adjutant were formerly the link of communication with the officer commanding the battalion; and hence, perhaps, has arisen a degree of apathy and indifference on the part of the Native officers, especially those who have attained their highest rank, which may more or less pervade the whole machine, by the baneful influence of example.

* * * * * *

The pay of the Native troops has not undergone any alteration for a long course of years. The private sepoy receives seven rupees per month in all stationary situations, and eight rupees and a half when marching or in the field; exclusive of half a rupee per month, allotted to the off-reckoning fund, for which they receive one coat, and nothing more, annually. From that allowance, with which, generally speaking, they are very well satisfied, they not only provide themselves with everything they require for food and raiment in all situations, but they also erect cantonments for themselves in all stationary situations, at their own expense; and moreover, there are but few amongst them who do not make considerable savings from their pay in the course of the year, which they carry or remit to their families, for their general maintenance and comfort. Indeed, such is the beneficence of their character in this respect, that when they proceed on foreign service, an extensive official arrangement is adopted on the part of Government, for remitting to the families and connections of the native soldiery a handsome portion of their pay during their absence.

APPENDIX J.

A GENERAL VIEW of the whole Military Force in India, with its Description and Distribution, October 1826.*

Description.	Bengal.	Madras.	Bombay.	No. of European Officers allowed to each Battalion, Regiment, or Corps.	No. of European Officers actually present, as nearly as can be ascertained.	Europeans, Non-commissioned and Privates.	Natives. Regulars.	Natives. Irregulars.	Strength of each description of Force.	Number of European Officers for the whole Army, and how disposed of.	
ARTILLERY.										If complete, the establishment is	4,577
Horse	3 Brigades	2 Brigades	1 Brigade	—		915	1,192			At present it is short about	400
Foot	5 Battalions	3 Battalions	2 Battalions	23	About 12	5,445					4,177
Golundauze		1 Battalion		—	About 8	—	—	947		Inefficient for want of experience, having been added to the army within the last three or four years	1,400
Ditto	1 Corps			—	About 9	—	—	2,508	15,782		
Artillery Lascars	1 „	1 Corps	1 Corps	None	None	—	—	3,410			2,777
Ordnance Drivers	1 „			None	None	—	—	1,365			
CAVALRY.										General Officers, Colonels, and inferior ranks in Europe on furlough, or sick certificate, or absent to places within the limits of the Charter, or for the benefit of their health in India	898
Governor-General's Body Guard	1 Corps			None	3	—	415				
Regular Native Cavalry	10 Regiments	8 Regiments	3 Regiments	23	13	—	15,482	—	26,094		
Irregular Native Cavalry	10 Corps		1 Corps	None	3	—	—	10,197			1,879
INFANTRY.										Employed on the General Staff, or Establishments connected with the Army, and doing duty with Irregular Corps	678
European Infantry	2 Regiments	2 Regiments	2 Regiments	23	14	3,486					
Ditto		1 Local Corps		None		235					
Serjts. attached to Eur. Corps, &c.				—		460					
Regular Native Infantry	74 Regiments	50 Regiments	24 Regiments	23	8 or 9	—	170,296				
Irregular Native Infantry	6 extra Regts. have been reduced.	5 extra Battalions.	5 extra Battns. and 3 Local Corps.	None	From 2 to 6	—	—	11,700			
Local Infantry	18 Corps			None	From 3 to 8	—	—	—	234,212	Leaving efficient Officers for the whole of the Company's regular army	1,201
Volunteer Battalions	4 „			None	About 12	—	—	30,297			
Infantry Levies and Escorts	17 „			None	1 or 2	—	—	—			
Provincial Battns. and Mug Levy	17 „			—	2	—	—	17,938			
Pioneers, Sappers, and Miners	2 Corps	2 Battalions	1 Battalion	None	1 to each comp.	—	—	4,575	4,575	Or in the ratio of one efficient officer to 165 men.	
KING'S TROOPS.								Compy.'s Troops.	280,863	KING'S OFFICERS.	
Light Dragoons	2 Regiments	1 Regiment	1 Regiment	—	43	2,772				Light Dragoons	172
Infantry	7 Regiments	7 Regiments	4 Regiments	—	48	19,162		King's	21,934	Infantry	864
											1,036
Whole Military Force in India				—					303,797	The number absent from their Corps not correctly ascertained.	

* Taken from Captain Walter Badenoch's "Inquiry into the State of the Indian Army."

Appendix K.

Return showing the Number of British Officers present with the Regiments of Native Cavalry and Infantry which took the Field in the Sutlej Campaign in 1845–46, and those Officers who joined from Furlough or Departments.

Corps.	Officers present.						Officers joined.					
	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.
G. G.'s Body Guard -	—	—	1	4	1	6	—	—	—	—	—	—
1st Light Cavalry -	1	1	4	8	4	18	—	—	1	3	—	4
3rd „ -	—	—	4	6	4	14	—	—	—	—	—	—
4th „ -	—	1	3	5	3	12	—	—	—	—	—	—
5th „ -	—	1	3	7	4	15	—	—	1	2	1	4
8th „ -	—	—	3	2	3	8	—	1	1	4	—	6
11th „ -	1	1	—	5	4	11	—	—	1	—	—	1
Total -	2	4	17	33	22	78	—	1	4	9	1	15
2nd Irregular Cavalry	—	—	2	1	—	3	—	—	—	—	—	—
3rd „ -	—	—	3	—	—	3	—	—	—	—	—	—
4th „ -	—	—	1	2	—	3	—	—	—	—	—	—
8th „ -	—	—	1	2	—	3	—	—	—	—	—	—
9th „ -	—	—	1	2	—	3	—	—	—	—	—	—
Total -	—	—	8	7	—	15	—	—	—	—	—	—
2nd Native Infantry -	1	—	2	5	8	16	—	—	2	1	—	3
6th „ -	—	—	3	7	5	15	—	—	1	1	—	2
7th „ -	—	1	1	8	4	14	—	—	2	—	—	2
9th „ -	—	1	1	4	5	11	—	—	1	—	—	1
11th „ -	—	1	4	4	6	15	—	—	1	2	—	3
12th „ -	1	—	4	8	4	17	—	—	2	1	—	3
14th „ -	1	—	2	5	3	11	—	1	2	1	—	4
16th „ -	—	1	1	5	5	12	—	—	3	—	—	3
24th „ -	—	1	4	9	4	18	—	—	2	—	—	2
26th „ -	—	1	1	8	4	14	—	—	1	1	—	2
27th „ -	—	—	2	4	5	11	—	—	1	2	—	3
30th „ -	—	—	5	9	5	19	—	1	—	—	—	1
Carried forward -	3	6	30	76	58	173	—	2	18	9	—	29

Corps.	Officers present.						Officers joined.					
	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.
Brought forward -	3	6	30	76	58	173	—	2	18	9	—	29
33rd Native Infantry -	—	1	2	8	5	16	—	—	1	—	—	1
36th „ -	1	—	3	7	6	17	—	—	1	—	—	1
38th „ -	1	—	2	8	4	15	—	—	3	2	—	5
41st „ -	—	1	2	9	5	17	—	—	2	—	—	2
42nd „ -	—	1	1	7	5	14	—	—	2	1	—	3
43rd „ -	—	1	2	5	5	13	—	—	1	—	—	1
44th „ -	—	1	3	6	5	15	—	—	—	2	—	2
45th „ -	1	—	3	7	5	16	—	—	1	—	—	1
47th „ -	1	—	2	5	4	12	—	1	—	1	—	2
48th „ -	1	—	3	8	5	17	—	—	1	—	—	1
54th „ -	—	1	2	6	5	14	—	—	1	2	—	3
55th „ -	1	1	3	7	5	17	—	—	1	1	—	2
59th „ -	1	—	1	6	5	13	—	—	—	1	—	1
63rd „ -	—	1	4	4	5	14	—	—	—	2	—	2
68th „ -	—	—	5	7	5	17	—	—	—	1	—	1
73rd „ -	1	—	4	7	4	16	—	1	—	3	—	4
Total -	11	14	72	183	136	416	—	4	32	25	—	61
Nusseree Battalion -	—	—	2	1	—	3	—	—	—	—	—	—
Sirmoor Battalion -	—	—	2	1	—	3	—	—	—	—	—	—
Shekhawattee Brigade	—	1	1	1	—	3	—	—	—	—	—	—
Total Native Infantry	11	15	77	186	136	425	—	4	32	25	—	61
„ Irregular Cavalry	—	—	8	7	—	15	—	—	—	—	—	—
„ Light Cavalry -	2	4	17	33	22	78	—	1	4	9	1	15
„ G. G.'s Body Gd.	—	—	1	4	1	6	—	—	—	—	—	—
Grand Total -	13	19	103	230	159	524	—	5	36	34	1	76

Recapitulation.

Corps.	Officers present.							Officers who joined from Furlough or Departments.						Total.							Strength of Corps in Native Officers, Non-commissioned Officers, and Men.
	Lieut.-Colonels.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Average No. of Officers present.	Lieut.-Colonels.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Lieut.-Colonels.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Average No. of Officers present & those who joined.	
1 Governor-General's Body Guard.	—	—	1	4	1	6	6	—	—	—	—	—	—	—	—	1	4	1	6	6	521
6 Regiments Light Cavalry -	2	4	17	33	22	78	13	—	1	4	9	1	15	2	5	21	42	23	93	15·5	500
5 „ Irregular Cavalry	—	—	8	7	—	15	3	—	—	—	—	—	—	—	—	8	7	—	15	3	2nd, 3rd, 4th 802; 8th, 9th 754
28 „ Native Infantry -	11	14	72	183	136	416	14·85	—	4	32	25	—	61	11	18	104	208	136	477	17·03	1,162
3 „ Local „ -	—	1	5	3	—	9	3	—	—	—	—	—	—	—	1	5	3	—	9	3	N. Bn. 1,101; S. Bn. 1,047; S. Bde. 1,734; viz. :— Cavalry 769; Artillery 52; Infantry 913
Total - -	13	19	103	230	159	524	—	—	5	36	34	1	76	13	24	139	264	160	600	—	1,734

Proportion of European Officers present to the established complement of Native Officers and Soldiers.

Arm of the Service.	At the opening of the Campaign.	After Officers on leave, &c. had rejoined.	Arm of the Service.	At the opening of the Campaign.	After Officers on leave, &c. had rejoined.
Governor General's Body Guard	1 to 87	1 to 87	Regular Infantry - -	1 to 80	1 to 69
Regular Cavalry - -	1 to 41	1 to 34	Local „ - -	1 to 431	1 to 431
Irregular Cavalry - -	1 to 260	1 to 260			

Adjutant Generals Office 1*st July* 1875.

Appendix L.

Return showing the Number of British Officers present with the Regiments of Native Cavalry and Infantry, which took the Field in the Punjab Campaign in 1848-9, and those Officers who joined from Furlough or Departments.

Corps.	Officers present.						Officers joined.					
	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.
1st Light Cavalry	1	1	4	6	2	14	—	—	—	1	—	1
5th „	—	1	3	4	4	12	—	—	1	1	—	2
6th „	—	—	1	6	3	10	—	—	2	—	—	2
7th „	—	1	3	6	3	13	—	—	—	—	—	—
8th „	1	1	2	2	3	9	—	—	1	1	—	2
11th „	—	—	1	5	4	10	—	1	—	1	—	2
Total	2	4	14	29	19	68	—	1	4	4	—	9
2nd Irregular Cavalry	—	—	1	2	—	3	—	—	—	—	—	—
3rd „	—	1	1	1	—	3	—	—	—	—	—	—
7th „	—	1	—	2	—	3	—	—	—	—	—	—
9th „	—	1	—	2	—	3	—	—	—	—	—	—
11th „	—	—	2	1	—	3	—	—	—	—	—	—
12th „	—	—	—	3	—	3	—	—	—	—	—	—
13th „	—	—	1	2	—	3	—	—	—	—	—	—
14th „	—	—	1	2	—	3	—	—	—	—	—	—
15th „	—	1	1	—	1	3	—	—	—	—	—	—
16th „	—	—	1	2	—	3	—	—	—	—	—	—
17th „	—	—	2	1	—	3	—	—	—	—	—	—
Total	—	4	10	18	1	33	—	—	—	—	—	—
1st Native Infantry	1	—	5	6	5	17	—	—	—	2	—	2
3rd „	—	1	4	5	4	14	—	—	—	2	1	3
4th „	1	—	2	8	6	17	—	—	—	—	—	—
8th „	—	1	3	6	6	16	—	—	1	3	—	4
13th „	—	1	3	8	5	17	—	—	1	—	—	1
15th „	1	1	1	6	6	15	—	—	—	2	1	3
18th „	1	—	3	5	5	14	—	—	—	—	—	—
20th „	1	1	2	6	6	16	—	—	1	—	—	1
22nd „	—	1	4	6	6	17	—	—	—	1	—	1
25th „	1	—	1	6	3	11	—	—	1	3	—	4
29th „	—	1	3	9	5	18	—	—	—	1	—	1
Carried forward	6	7	31	71	57	172	—	—	4	14	2	20

Corps.	Officers present.						Officers joined.					
	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Lieut.-Cols.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.
Brought forward	6	7	31	71	57	172	—	—	4	14	2	20
30th Native Infantry	—	1	5	6	5	17	—	—	—	1	1	2
31st „	—	1	3	5	5	14	—	—	—	2	—	2
32nd „	1	—	3	6	5	15	—	—	1	—	—	1
37th „	—	1	1	8	4	14	—	—	—	—	—	—
45th „	—	—	—	7	4	11	—	1	1	1	—	3
46th „	—	1	2	8	5	16	—	—	—	1	1	2
49th „	1	1	3	6	5	16	—	—	1	1	1	3
50th „	—	1	2	7	5	15	—	—	1	—	—	1
51st „	—	1	1	7	6	15	—	—	2	1	—	3
52nd „	—	—	2	5	8	15	—	—	1	—	—	1
53rd „	—	1	4	6	5	16	—	—	—	2	—	2
56th „	1	1	2	7	7	18	—	—	—	—	—	—
69th „	—	—	3	5	5	13	—	—	—	1	—	1
70th „	1	1	3	5	3	13	—	—	—	3	1	4
71st „	—	1	2	9	5	17	—	—	—	—	—	—
72nd „	1	—	3	7	5	16	—	—	—	1	—	1
73rd „	—	1	4	7	6	18	—	—	—	—	—	—
Total	11	19	74	182	145	431	—	1	11	28	6	46
1st Sikh Infantry	—	1	—	2	—	3	—	—	—	—	—	—
2nd „	—	1	—	2	—	3	—	—	—	—	—	—
Total	—	2	—	4	—	6	—	—	—	—	—	—
Det. Corps of Guides	—	—	—	1	—	1	—	—	—	—	—	—
Total Sikh Infantry	—	2	—	4	—	6	—	—	—	—	—	—
„ Native Infantry	11	19	74	182	145	431	—	1	11	28	6	46
„ Irregular Cavalry	—	4	10	18	1	33	—	—	—	—	—	—
„ Native Light Cavy.	2	4	14	29	19	68	—	1	4	4	—	9
Grand Total	13	29	98	234	165	539	—	2	15	32	6	55

Recapitulation.

Arm.	Officers present.							Officers who joined from Furlough or Departments.						Total.							Strength of Corps in Native Officers, Non-commissioned Officers, and Men.
	Lieut.-Colonels.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Average No. of Officers present with each Regt.	Lieut. Colonels.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Lieut.-Colonels.	Majors.	Captains.	Lieutenants.	Cornets and Ensigns.	Total.	Average No. of Officers present and those who joined.	
6 Regts. of Regular N. Cavalry	2	4	14	29	19	68	11·33	—	1	4	4	—	9	2	5	18	33	19	77	12·83	500
11 „ of Irregular „	—	4	10	18	1	33	3	—	—	—	—	—	—	—	4	10	18	1	33	3	584
28 „ Regular Native Infy.	11	19	74	182	145	431	15·39	—	1	11	28	6	46	11	20	85	210	151	477	17·0	1,162
2 „ Local „	—	2	—	4	—	6	3	—	—	—	—	—	—	—	2	—	4	—	6	3	962
Corps of Guides - -	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	1	—	1	1	{Cav. 100 / Infy. 192} 292
Total - -	13	29	98	234	165	539	—	—	2	15	32	6	55	13	31	113	266	171	594	—	

N

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Proportion of European Officers to the established complement of Native Officers and Soldiers.

Arm of the Service.	At the opening of the Campaign.	After Officers on leave, &c. had rejoined.	Arm of the Service.	At the opening of the Campaign.	After Officers on leave, &c. had rejoined.
Regular Cavalry - -	1 to 45	1 to 38	Local Infantry - - -	1 to 320	1 to 320
Irregular „ - -	1 to 195	1 to 195	Corps of Guides - -	1 to 292	1 to 292
Regular Infantry - -	1 to 77	1 to 68			

Adjutant-General's Office, 1st July 1875.

Appendix M.

Memorandum on the System of Promotion to the Commissioned Grades of the Native Army of Bengal.

1. As the present system of promotion to the commissioned and non-commissioned grades of the Native army is the consequence and result of the various changes which have occurred in the organization of the army since the mutiny, it seems necessary, in order to arrive at a satisfactory conclusion on the question raised by the late Adjutant-General, to review shortly the position of the Native army immediately after the mutiny, the measures adopted for its re-organization, and the rules laid down from time to time to govern promotions in the commissioned and non-commissioned grades.

2. In November 1857 the Court of Directors requested the Governor General to assemble a Commission of experienced military officers of the three Presidencies to consider questions connected with army reorganization. Lord Canning did not think this practicable, and, contrary to the strongly urged advice of Sir James Outram, decided against the assembly of such a Commission, but resolved to collect replies to certain questions from officers and civilians of experience with a view to founding on them a decision on this all-important subject. Colonel Durand was appointed to collect these replies, but in July 1858 a Royal Commission was assembled in London, which recorded a large mass of evidence and submitted its report in March 1859, and made, among other recommendations, the following bearing on the subject under consideration :—

Despatch No. 235, Military, 25th November 1857.

Military Department letter No. 369, dated 22nd May 1858.

Minute, 30th May 1858.

Blue Book, 1859.

I. "That the Native army should be composed of different nationalities and castes, and as a general rule, mixed promiscuously through each regiment."

II. "That the promotions of Native commissioned and non-commissioned officers should be regulated on the principle of efficiency rather than of seniority, and that commanding officers of regiments should have the same power to promote non-commissioned officers as those vested on the commanding officers of line regiments."

3. Government General Order No. 1277 of 1859, however, appears to be the earliest public notification of an attempt to re-organize the regimental system, by striking out of the lists of the army those regiments which had mutinied, and notifying those corps which had remained either wholly or in part loyal, and whose services the Government proposed to retain. By this order the numbers of

4 troops of horse artillery,
3 battalions of foot artillery,
10 regiments of light cavalry,
59 regiments of regular infantry,
2 regiments of irregular infantry,
6 regiments of irregular cavalry,
And the whole of the Oude irregular force,

were removed from the Bengal army; praise was awarded to those corps which had remained loyal, regulations were laid down for the discharge of men of doubtful loyalty, but no scheme of reconstruction was shadowed forth.

4. Under orders issued by Government early in 1858, levies, to take the place temporarily of the mutinied corps, were raised, and their composition and strength was fixed by the Commander-in-Chief. The general idea in raising these levies appears to have been that they were to be composed, as a rule, of low-caste men, and this was thoroughly followed out in the case of the Mynpoorie levy (now the 35th Native Infantry), in which men of the lowest castes only were permitted to be enlisted. In the levies raised at Bareilly (now the 36th Native Infantry), Shahjehanpore (now 40th Native Infantry), Moradabad, Meerut (now 39th Native Infantry), and Agra (now 38th Native Infantry), sanction was given for the enlistment of two companies of Rajpoots, while the Bijnore levy, which however was not afterwards incorporated in the army, was entirely composed of Rajpoots. From the above it will be observed that the original intention was only carried out in the Mynpoorie levy, which was the only corps in which the enlistment of Mehters, humarsC, Lodhs, Pasees, &c., was at that time sanctioned. The composition given to these regiments then was but slightly altered in the reconstruction which took place in the end of 1862.

G. G. O. No. 2 of 8th Jan. 1858.

Adjutant-General's letters Nos. 319A, 1,192A, 1,629A, 1,910A, 2,829A of 1858.

5. In June 1859 Government directed that the establishments of the armed corps of the line were to be gradually reduced to 700 men, and those of the various levies to 600, and that recruiting for all regiments which were above their complement should cease. Any recruiting which was necessary was to be carried on among those classes, of which the corps were at the time composed. In December 1859, recruiting for all Native corps, except Goorkha and Assam regiments, was strictly forbidden, and this prohibition remained in force until the end of 1862.

G. G. O. No. 144 of 1859.

Military Department letter No. 920, dated 26th November 1862.

6. In September 1860, the Commander-in-Chief (Sir H. Rose) submitted to Government a report on the newly raised levies,* and strongly urged the advisability of admitting to the military service men of low-caste. This letter was accompanied by a précis of the reports received from the officers† under whom these levies were at the time serving. Of these officers Major-General Bradford and Lieutenant-Colonel Bruce alone expressed unqualified approbation of low-caste men as soldiers. Brigadier Wheler stated that he made a distinction between the lower classes, such as Jats, Aheers, Lodhs, &c., and the lowest classes, whom he considered quite unfit, owing to their being universally despised and looked down upon, for the commissioned or non-commissioned grades. In these opinions Colonel Darvall agreed. Brigadier Denny pointed out that the fact of low-caste men being accustomed from their earliest childhood to submit to the higher castes was a serious disqualification to them as soldiers, and that the strength of this hereditary and accepted inferiority was evident in the Cawnpore levy, where the low-caste men, though in the majority and aware that the officers were prepared to support them, were unable to hold their own against Brahmans and Rajpoots. Major-General Campbell expressed himself very strongly against low-caste men, and Major-General Sir James Hearsay's approval of them (as soldiers) was but lukewarm.

Adjutant-General's letter No. 1,613A.

* Agra, afterwards and at present - 38th N. I.
Allahabad - - - - 33rd N. I.
Bareilly - - - - 36th N. I.
Cawnpore
Futtehgurgh - - - 34th N. I.
Meerut - - - - 39th N. I.
Mynpoorie - - - - 35th N. I.
Shahjehanpore - - - 40th N. I.
Moradabad.

† Brigadier Wheler.
Colonel Darvall.
Brigadier Denny.
Major-General Bradford.
" Campbell.
" Sir J. Hearsay.
Lieutenant-Colonel Bruce.

The order renumbering the cavalry regiments, and admitting regiments hitherto irregular to the list of the cavalry of the fixed establishment was issued in May 1861.

G. G. O. No. 494 of 1861.

7. The Secretary of State, when commenting on the Commander-in-Chief's Report, observed that the experiment of organizing and maintaining corps exclusively of low caste men had not apparently been generally carried out, and that therefore the opinions submitted could refer only to the mixture and proportions of castes in regiments. Concurring generally in the views expressed on these points, the Secretary of State was of opinion that in such corps a discretion should be left to commanding officers to enlist the fittest men, but that they should be required to submit periodical caste returns, so that any deviation from the authorised proportion of classes might be checked. As the principal military defect of low-caste men seemed to be want of self respect and inability to resist the hereditary claim to superiority of the higher castes, Sir Charles Wood thought it to be worthy of consideration whether the useful qualities of low-caste men might not be turned to account in separate regiments where they would not be depressed by associating with men who, even when inferior in military rank, asserted a social superiority. The Secretary of State in conclusion urged the importance of restricting the recruiting for certain regiments to particular districts, as this appeared to him to be a matter of much greater importance, with a view to check combination, than even the proportion of castes and classes in regiments of a mixed composition.

Military Despatch No. 73, 8th February 1861.

8. In May 1861, Government issued orders renumbering the regiments of the army, admitting to the line the low-caste levies, fixing the strength of corps, and directing the manner in which the necessary discharges and absorptions were to be carried out. Under this order the regiments of the line were numbered up to 48, but in October of the same year a modification of the numbering was made, the Goorkha corps being withdrawn from the line, and the remaining corps closed up and renumbered, thus making 44 regiments of the line, to which in 1864 was added "Rattray's Sikhs," which then became the 45th Native Infantry.

G. G. O. No. 400 of 1861.

G. G. O. No. 494 of 1861.

G. G. O. No. 326 of 1864.

9. In October 1861, an interesting correspondence, conveying the views of the Commander-in-Chief on the subject of army organization, was commenced, and continued until the end of 1862 when Government, although requiring that certain corps should continue class corps, or retain their existing composition, expressed a general concurrence in the proposals of the Commander-in-Chief, authorized effect being given (generally) to them, and directed that recruiting should commence as early as possible.

Adjutant General's letter No. 1298A of 6th October 1861, and No. 1357A of 19th October 1861.
Adjutant-General's No. 61A of January 1862.
Adjutant-General's No. 4495 of August 1862.
Military Department letter No. 852,-of November 1862.

10. In this correspondence the Commander-in-Chief (Sir H. Rose) expressed himself strongly in favour of a mixed composition in the "*personnel* of all Native corps cavalry and infantry to the "greatest extent possible (including even Goorkha regiments)," and thus his views were in accordance with those of the Royal Commission which sat in London in 1858–59. His Excellency at the same time pointed out that there were three ways in which a mixed composition could be given to the army:—

Paragraph 2.

I.—That a regiment should consist of men of different races and castes, without any separation of the different castes or classes into companies.

II.—That a regiment should consist of companies of different races or castes.

III.—That each regiment or battalion should consist of soldiers of the same caste, tribe, or nationality.

Sir H. Rose was himself in favour of the second method, but considering that the relative merits of this method and of the first (general mixture) were open to much discussion, he was not prepared to recommend the substitution of the second for the first, in those cases where the latter was found to work well. The third method does not appear to have received much consideration, but was dismissed as being only feasible when worked in brigades, and therefore unsuited to India. Major-General Sir Sidney Cotton strongly urged the adoption of the last-mentioned system (regimental), while the 1st and 2nd (general mixture and class companies) were as strongly supported by Brigadier-General Chamberlain and Lieutenant-Colonel H. B. Lumsden.

Peshawur Division, No. 126 of July 1860.

11. The various arguments, for and against each system, were conveyed to Government in May 1862, but although the disadvantages of the "general mixture" and "class company" systems were by no means ignored, the Commander-in-Chief still held to his previously expressed opinion, that these systems afforded the greatest security against combination or plotting in the Native army.

Adjutant-General's letter No. 227, of May 1862.

12. In sanctioning the adoption of the new organization, Government ruled as follows:—

"The promotion should of course go without reference to caste or race, the senior fit man, whoever he may be, obtaining it. This will be necessary even in the Hindoostanee corps now to be formed into class company regiments, and will for some time cause companies of one class to have officers or non-commissioned officers of another class. This, though apparently inconvenient, may not be without counterbalancing advantages, but as opportunity offers, and by transfers in the regiment, these corps may be gradually brought to consist purely of companies of particular classes."

Military Department letter No. 852 of 25th November 1862, para. 12.

13. In the end of 1862, and the beginning of the following year, the new organization was brought into force by circular letters to officers commanding regiments of Native infantry and cavalry, and it is worthy of note that in each of these letters, which as a rule directed a mixed composition, it was distinctly laid down that promotions were to go to the senior eligible man without reference to class or nationality, and this ruling, although the wording of it hardly warrants the conclusion, appears to have been accepted as a direction to adopt the old method of seniority promotions, so much so, that even in some corps where class promotions had existed, commanding officers felt themselves bound to revert to the seniority system.

Adjutant-General's letters Nos. 7227, 7235, 7444, 7461, (Infantry) of 1862.
Adjutant General's letters Nos. 51, 52, 53, 84, 91, 149–159 (Cavalry) of 1863.

19th Native Infantry.
21st Native Infantry.
30th Native Infantry.

14. The Secretary of State (1863) forwarded to India two despatches containing the instructions of Her Majesty's Government on the subject of the reconstitution of the Indian army.

Secretary of State's Despatch No. 107 of 16th March 1863.
Ditto 179 of 16th April 1863.

In the first of these the Secretary of State, while concurring generally in the views expressed by the Commander-in-Chief, pointed out that the main objects to be borne in mind in a reorganization of the Native army were, first, to equalise the proportions of each race employed; second, to adopt such a distribution of races and castes as would be least likely to admit of combination, and yet lead to the greatest contentment among the men; third, to give employment to warlike races. With these objects in view the following classifications, said to differ but slightly from those proposed by the Commander-in-Chief, were suggested:—

Secretary of State's Despatch No. 107 of 1863.

I.—A national or class system, in which all the men of a regiment should be of the same province, race, and creed. Regiments on this system to be the exception not the rule.

II.—A provincial system, under which regiments should be composed of men of the same province but of different races and creeds.

III.—A mixed system, the regiments of which would be composed of men of different provinces, classes, and creeds, and divided or not, as occasion required, into class troops or companies.

The Secretary of State at some length compared the merits, as soldiers, of the different races of India, and urged the necessity for employing as few Native soldiers as possible, and for relying implicity on no particular race or class; concluding the despatch by strongly advocating the advantages to be obtained by localizing, as far as possible, the Native army of India, and thus while preserving local feelings and prejudices to make all ranks contented and happy in the service.

The second despatch contained approval of the measures sanctioned by the Governor General in Council, as also of the instructions issued by the Commander-in-Chief in giving effect to these measures; and concluded with a very remarkable paragraph on the subject of promotions in the Native army, the real meaning of part of which it seems impossible to understand. In the first part of this paragraph great satisfaction is expressed with the rule laid down to regulate promotion (*i.e.*, that the senior qualified man without reference to caste or race should obtain the promotion).* The meaning of the latter part of the paragraph, however, is not so plain, but it would appear to be implied, although the method proposed seems an impossibility, that in class company regiments this system would require modification, in order that each class might be fairly represented among the commissioned and non-commissioned officers.

Paragraphs 9, 12, and 13.

Vide para. 12.

* The principle on which this rule is based is unquestionably sound and just, but it will be found necessary in regiments of mixed composition, to apply the rule rather to the more important classes composing the regiment than to the whole corps, to ensure that each class shall be fairly represented among the Native commissioned and non-commissioned officers.

15. The class system, as set forth in the letters quoted in paragraph 13, was of necessity an experiment, especially so far as concerned the proportion of classes in individual regiments, and as early as March 1863 (or two months after the first orders were issued), the officer commanding the 11th Bengal Cavalry sought and obtained a modification of the composition of his corps. The 13th Bengal Cavalry followed this example, but their application was refused by Government. From that date until the present, numerous applications have been made, from time to time, by officers commanding regiments for changes of the composition assigned to their corps. Some of these applications have been approved by the Commander-in-Chief and sanctioned by Government; others, his Excellency has refused, and consequently, though in some cases slightly modified, the constitution of the Bengal army remains at the present day almost identical with that sanctioned in 1862.

May 1863.

16. In 1866-67 the Commander-in-Chief on the urgent solicitation of the officer commanding the 23rd Pioneers, represented to Government the necessity for so far relaxing the seniority rule as to permit the appointment to the commissioned grades of that regiment of Sikhs of higher social position than could be found in the ranks, and Government conceded the point, but expressed a hope it would not be found necessary to fill all vacancies in the commissioned grades in this way.

Adjutant-General's letters No. 969 of the 8th September 1866, and No. 1129N of 12th October 1866.

Military Department letter 253 of 7th February 1867.

17. In March 1868, the Commander-in-Chief (Sir William Mansfield) reported to Government, that he was of opinion that the experiment of admitting low-caste men to the army had proved a failure, and recommended that the future composition of the Native army should be modified by the exclusion of men of certain classes, such as Dogras, Bundelas, Aheers, Pasees, Lodhs, Danooks, Koormees, Chumars, Mehters, &c. The Government replied that, though agreeing with the Commander-in-Chief as to the defects and disqualifications of the majority of the castes named, they could not approve of the absolute exclusion of Aheers, Bundelas, Dogras, Goojars, and Malees, but that whenever a commanding officer found any difficulty in obtaining recruits of the authorised classes, he should at once report the fact, in order that the composition of his regiment might, with the Commander-in-Chief's sanction, be modified. This letter from Government was published *confidentially* to commanding officers in an Adjutant-General's circular, dated 26th May 1868.

Adjutant-General's letter No. 268N of 20th March 1868.

Vide paras. 6 and 7.

Military Department letter No. 1255 of 29th April 1868.

18. Early in 1871 a question was raised by Government as to whether officers commanding regiments had enlisted men of classes and castes, not sanctioned for their corps by the orders of 1862. A circular was issued, and the replies received showed that these orders had in many instances been lost sight of. The Commander-in-Chief replied to Government to that effect, and stated that the enlistment of unauthorized classes seem to have been, to a great extent, unavoidable, but that the regulations he had issued would prevent a recurrence of the irregularity.

Military Department letter No. 267 of 19th May 1871 (case 3N, 1871).

1250N of 15th June 1871 (case 3N, 1871).

Adjutant-General's letter No. 2269N, 20th October 1871 (case 27N, 1871).

Adjutant-General's Circular No. 2146N, 30th October 1871.

19. A statement made by the officer commanding the 18th Bengal Cavalry, in an application for a change of composition, that "The system of promoting "Native officers throughout regiments without regard to the "nationality of the troop into which they were promoted," had operated detrimentally against the recruiting of Jats, drew from Government a request to be furnished with further information on this point, as should the practice be as stated by Colonel Smith, it was "opposed "to the intentions Government had in view in settling the "composition of corps, and was altogether subversive of the policy which underlies that arrangement." This statement is strangely at variance with the instructions conveyed by Government in their letter No. 852 of 1862, and with the strongly expressed views of the Secretary of State on the subject of promotions. It is true that in the ruling of Government above referred to, a system (for the distant future) of class promotions is alluded to, but it is clear that the point insisted on is, that "the senior fit man, whoever "he may be, is to receive the promotion;" and this point is equally strongly urged by the Secretary of State. The Commander-in-Chief, however, replied to Government that "this system (seniority and "fitness) was the practice in the Bengal army long before he "assumed command, but that instructions would be issued which would give effect to the "intentions of Government." His Excellency, however, pointed out that "a system of class promotions, while removing "one evil would occasion another in the discontent which "would inevitably ensue from the frequent supersessions which must take place among individuals "of the same standing and in the same regiment."

Colonel Smith's Memorandum (paragraph 8) forwarded with his confidential letter of 15th April 1871 (case 27N, 1871).

Military Department letter No. 216 of 11th June 1871 (case 27N, 1871).

Vide paragraph 12.

Vide paragraph 14.

Adjutant-General's letter No. 2268N, 20th October 1871 (case 27N, 1871).

Adjutant-General's letter No. 2269N, 20th October 1871 (case 27N, 1871).

20. On the 30th October 1871, with a view to carrying out the wishes of Government, a circular was issued to the commandants of all Native regiments, directing that "vacancies in the commissioned and non-"commissioned grades of a regiment, having class troops or "companies, shall be filled up by men of the same class as that in which the vacancies have "taken place." Thus the system of promotion in the Native army, fixed by the Secretary of State in 1862, was at the request of the Government of India modified, and the system now in force, promotion by classes, established.

Adjutant-General's Circular No. 2146N, of 30th October 1871.

21. Early in 1872 the Secretary of State requested that he might be furnished with copies of any orders or instructions which had been issued since 1857, on the subject of the selection and promotion of Native officers. A list of the general orders and circulars bearing on the question was forwarded to Government, and from these it appeared that, between 1857 and 1872, the following important rulings had been given:—

Secretary of State's despatch No. 46 of 1872, and Military Department letter No. 1064, April 1872.

Adjutant-General's letter No. 2312A, 8th July 1872 (case 90A of 1872).

I.—That the senior fit man, without reference to caste or class, should be promoted.

Adjutant-General's Circular No. 7519, 20th December 1862 (vide also para. 11.)

G. G. O. No. 280 of 1864.

Government letter No. 253 of 7th February 1867.

Adjutant-General's Circular No. 2146N of 30th October 1871.

Adjutant-General's Circular, 25th June 1872.

II.—That commanding officers might disrate Native commissioned officers.

III.—Sanctioning the introduction of a higher element into the commissioned grades of the 23rd Pioneers.

IV.—Directing class promotions.

V.—Authorising the direct appointment of Native gentlemen of warlike races to the commissioned grades of the army.

22. The Commander-in-Chief directed that officers commanding regiments should be called on to report on what system they had acted in making promotions, and how that system had answered. The replies to this inquiry showed, as was to be expected, a great diversity of opinion, and contained many suggestions and proposals in connexion with the subject of promotions in the Native army. Owing to the diversity of views expressed it is not possible, with absolute correctness, to arrive at a distinct set of figures, but approximately the result of the inquiry as to the system of promotion in force, appears to be, that in—

Adjutant-General's Circular No. 2560A, 26th July 1872 (case 90A of 1872).

THE CAVALRY,

11	regiments	promoted by seniority coupled with fitness.
6	ditto	promoted by selection.
2	ditto	had no decided system.
19		

IN THE INFANTRY,

34	regiments	promoted by seniority (and fitness).
10	ditto	promoted by selection.
5	ditto	by other systems or without any fixed method.
49		

A large number of commanding officers approved of seniority, if coupled with fitness, being the rule throughout all grades; but some recommended selection for the non-commissioned grades, and seniority (coupled of course with fitness) for the commissioned grades. The officer commanding the 11th Native Infantry pointed out, that if high military qualifications alone were sought, promotion by seniority was not likely to secure them; but if contentment among all ranks was valuable, the system had much to recommend it. The officer commanding the 32nd Pioneers, while recommending that unfettered powers of selection should be vested in commanding officers, doubted whether a general adoption of such a system would be for the good of the service. The officer commanding the 23rd Pioneers considered free and *judicious* selection would be popular, and that the power to make selections would add much to the influence and authority of commanding officers, and cause zeal and emulation throughout all ranks. The officer commanding the 2nd Goorkhas considered promotion by seniority the only system suited to Goorkha regiments. Several commanding officers recommended direct commissions being granted to Native gentlemen; and some advised the establishment of military colleges and competitive examinations. There were various other opinions expressed, and suggestions made, but speaking generally the above-quoted answers may be accepted as types of the whole.

23. The opinions thus elicited were forwarded to Government with an expression of the Commander-in-Chief (Lord Napier of Magdala's) opinion "that when the system of class promotions had time to "develope itself, the efficiency of the Native army would "proportionately increase." His Excellency also drew attention to the pension rules, "which he "considered should be so modified as to prevent the necessity for retaining in the service Native "officers who were hardly equal to the active duties of their profession."

Adjutant General's letter No. 3509A of 7th October 1872 (case 90A, 1872).

24. This letter was forwarded to Government in October 1872, and no further action has been taken in the matter, and consequently although the course sanctioned by Government in the case of the 32nd Pioneers (paragraph 16) may almost be accepted as an acknowledgment that low-caste men are unfitted for the commissioned grades, promotion in the Native army should be governed by the rules promulgated in Adjutant-General's circular No. 2146N of 30th October 1871.

Vide paragraph 16.

H. BROOKE, Lieut.-Colonel,
Assistant Adjutant-General.

October 21st, 1874.

CORRESPONDENCE relating to the COMPOSITION of the NATIVE ARMY.

Proceedings of the Government of India in the Military Department for November 1862.

No. 721.

From Lieutenant-Colonel W. Mayhew, Adjutant-General of the Army, to the Secretary to the Government of India, Military Department,—(No. 1298A, dated Head-Quarters, Calcutta, the 5th October 1861.)

As the time has now arrived for transferring to Native regiments the supernumeraries that have accrued from the disbanded corps, and of completing them with recruits, the Commander-in-Chief would avail himself of the occasion to again point out the great advantage to be derived

from a mixed composition in the *personnel* of all native corps of cavalry and infantry to the greatest extent possible.

His Excellency has gone deeply into the subject, and is persuaded that a mixed composition must necessarily be a guarantee for the suppression of any spirit of disaffection or conspiracy that might be attempted in a Native corps. The general opinion of the most experienced officers of the Bengal army is, that this mixture should be carried out by companies of various castes and tribes, and not by a general admixture of men of all classes in corps at large.

The few old regiments of the line still remaining are composed of the very same classes as obtained before the mutiny, but all the new levies are of a mixed composition; and his Excellency very strongly recommends that companies of men of separate castes and races, and often of country, be introduced into the Native army, both in the Hindoostanee and Punjabee corps, as the old men die out.

With respect to the Goorkha regiments, in which nationality has been preserved very closely, it is believed the Government is averse to any change; but his Excellency cannot agree to a principle so full of risk, and he ventures to be of a different opinion, and to instance in support of his views the conduct of the Nusseeree battalion during the mutiny. As these corps are generally stationed in the hills at isolated cantonments, any disaffection on their part would be doubly dangerous to the peace of the country.

The Assam and Sylhet corps are similarly isolated; but the Commander-in-Chief would advise Government that they should not be allowed to remain local longer than the difficulty of effecting their relief may render necessary.

No. 722.

From Lieutenant-Colonel W. Mayhew, Adjutant-General of the Army, to the Secretary to the Government of India, Military Department,—(No. 1357A, dated Head-Quarters, Calcutta, the 19th October 1861).

In continuation of my letter to your address No. 13A of the 12th instant, the Commander-in-Chief desires me to say that he thinks it may be interesting to Government to peruse a letter (as per margin) which Major-General Sir S. Cotton voluntarily addressed to his Excellency last year on the receipt of a circular requesting him to watch and report any manifestation of unfavourable feeling in any Native regiment under his command.

No. 126, dated 26th July 1860.

2. His Excellency does not apprehend, from what he knows of the sentiments of Government, that they will agree with Sir S. Cotton that the mixed composition of the Native army should be regimental, that is, that each corps should consist of a caste or race, with the view to its being antagonistic to another corps of a different caste or race.

3. As the general subject is very important, the Commander-in-Chief thinks that it is desirable to enter into a further detail respecting it.

4. I am to observe that all officers whom his Excellency has consulted and whose opinions he has heard are in favour of mixed composition, of which there are three descriptions:—

1*stly*.—General composition, *i.e.*, that a regiment should consist of men of different castes or races, without any separation of the different castes into companies.

2*ndly*.—Company composition, *i.e.*, that a regiment should consist of companies of different races, each company composed of a caste or tribe.

3*rdly*.—Regimental composition as recommended by Sir S. Cotton, *i.e.*, that each regiment or battalion should consist of soldiers of the same caste, tribe, or nationality.

5. In the Bombay army the general composition is the rule, and it is warmly supported by first-rate officers, amongst them Colonel Malcolm, C.B., commanding the regiment of Mahratta Horse.

6. In Bengal the company composition is the rule, and general composition is the exception.

7. The Commander-in-Chief has before had the honour to say that he prefers, on the whole, the company composition; but, on the other hand, so many good officers prefer the general composition, which has worked well in the Bombay army, but the relative merits of both systems are so open to discussion that his Excellency is of opinion that where the general composition exists and works well, he would not be disposed to disturb it for the purpose of introducing the company composition.

8. The prominent advantage of either system is, that in the general composition, confederacy or conspiracy is more difficult, because more under the supervision and eye of a rival, or at any rate different race or sect.

9. The advantage of the company composition is, that a fraction of a corps may be tainted, without the other parts being affected; that the rivalry or antagonism of different sects is not rubbed away or weakened by general mixture, and that whilst the low-caste man can keep up his social independence in a company composed of his own caste, he would, if the mixture were general, succumb to the overwhelming influence of the Brahmins or high-caste men.

10. The regimental mixture to work well involves the necessity of regiments being concentrated in brigades, and as in India brigades are seldom to be found except at the head-quarters of divisions, the system cannot come into operation, to say nothing of the difficulty the Quarter-master-General would experience in being always able to arrange that a brigade should be formed of antagonistic regiments.

11. The Commander-in-Chief wishes to modify his opinion as conveyed in my letter of the 12th October that a mixed composition should be introduced into the Goorkha regiments; he would except the 17th regiment (Sirmoor), because he considers the Government, chiefly on account of their excellent conduct before Delhi, held out hopes to them through their commanding officer that they were to retain their nationality and form a Goorkha colony.

No. 723.

From Major-General Sir S. Cotton, K.C.B., Commanding Peshawur Division, to the Adjutant-General of the army, Calcutta,—(No. 126, dated Murree, the 26th July 1860).

CONCLUDING from the recent confidential circulars from your office that there exists just and reasonable grounds for anxiety on the part of the Government regarding the state of discipline of the Punjabee portion of the Native army, I deem the present a fitting opportunity for submitting for the consideration of his Excellency the Commander-in-Chief the following suggestions, the adoption of which I believe would render the organization of this part of the Native army of a more trustworthy character than at present, without affecting either its goodwill or efficiency.

2. The first measure I propose towards the attainment of this end is to produce and bring into operation that feeling of antagonism naturally existing between the castes or races of which the Native army is composed, by the formation of corps of distinct races, so that one would become an effective check on the other.

3. I would recommend therefore the gradual conversion by voluntary transfers of the present mixed corps into homogeneous regiments wholly composed of men of one race and caste, and drawn as far as possible from the same province.

4. Thus regiments of Malwa Sikhs, Manjha Sikhs, Dogras, Muzbees, Affreedees, Punjabee Mussulmen, &c., would be established.

5. The separation of castes by corps would conduce so much to the comfort and happiness of the Native soldiery, that there could be no difficulty in carrying it out, and I believe that it would render the service more popular.

6. It might be expedient in some cases to remove a corps for a time towards its own part of the country, which would not only increase the number of transfers, but would impart to it its own provincial tone and character.

7. Corps thus formed would very soon acquire a feeling peculiar to their own race or religion, while they would lose all sympathies with other regiments; the animosities of caste would come fairly into play, and combination between regiments rendered almost impossible; disaffection and mutiny might take place in one corps, but it is not likely under the proposed system that it would extend beyond it.

8. In the present organization of the Native army any seditious feeling taken up by one corps would naturally be conveyed to another and spread over the whole army, because the same composition runs for the most part in all regiments.

9. In many of the newly-raised Punjab regiments it is true that the companies are formed of distinct races; but this at the best is a very partial improvement on the old system of mixing up all classes, and does not answer the object in view, inasmuch as the companies are scarcely removed from one another and the men are still associated together on duty and in the lines.

10. Besides, soldiers incorporated together in a regiment, and serving together in quarters, in the field, and in all the various circumstances of military life, however different in race or religion, become linked together by a strong feeling of regimental brotherhood, which modifies very considerably their national animosities or prejudice of caste.

11. I urge therefore the separation of castes and races by regiments as an important measure, by which alone the antagonism can be preserved, and by which, with a due regard to the disposition of regiments, the most effectual check against combination is secured.

12. The second proposal I have to make is to diminish the strength of all infantry corps to about 700, including all but the commissioned ranks, and to form them into eight companies; I recommend this on the ground that natives whenever called together in large numbers acquire a notion of strength, which in itself is dangerous and tends to disaffection. With such reduced numbers as proposed every individual of a corps would come more closely under the eye of his commanding officer; fewer European officers would be necessary, and the corps would still remain useful and efficient for any description of service.

13. A third point worthy of consideration is relative to the power vested in commanding officers for the punishment of crime. The provisions of Act VI. of 1860 give to commanding officers the powers of a district court-martial, and as far as the Hindoostanee regiments are concerned, it is a good improvement on the old system; but it does not form a sufficient substitute for the magisterial powers vested in commanding officers of Punjab regiments by the Punjab Government, which enabled them during the crisis of the mutiny so successfully to raise and maintain corps in a state of discipline. Their powers extended to three years' imprisonment with hard labour, and included also fine, which, although inapplicable to European soldiers, is still a most useful punishment with natives in all neglects of duty and minor offences.

14. I learn from your Confidential Circular, No. 1,327, dated 6th July 1860, that his Excellency the Commander-in-Chief has determined that officers selected specially for their qualifications shall henceforward be appointed to the command of these corps. Such being the case, I would recommend the fullest powers possible being vested in them; for the native respects power only.

The commanding officer should in his own corps be the representative of the power of Government, and beyond him there should be no appeal as far as the non-commissioned officers and privates are concerned, and even in the cases of the commissioned officers his authority should on all occasions be supported; such powers as these, wielded with decision and judgment, can alone, in my humble opinion, ensure that necessary control over the hardy and brave but fanatical and dangerous races of which these corps are composed.

15. The commander being thus furnished with full powers to control his regiment, I should hold him alone responsible for its discipline, efficiency, and for the preservation of its good-will; but I would summarily remove an officer from his command if his corps fell into disorder, or if he showed himself unfitted for it by a want of judgment, zeal, or decision.

16. I would, in the next place, suggest the expediency of introducing more extensively into the commissioned grades of the army native gentlemen of respectable families, being convinced that the good conduct of a corps, in quarters as well as in the field, is more certainly to be ensured and depended upon when the discipline is carried out by the means of men who command the respect of the lower ranks. I do not recommend the total exclusion of men from the ranks who have shown themselves specially deserving of promotion; but that, as a general rule, the commissioned grades should be filled by men of known respectability.

The Native officer rising from the ranks and of low origin is never respected by the men; he has but little influence over them, and when detached from his regimental head-quarters, is in general found pandering in an unworthy way to their wishes by allowing all kinds of neglects and irregularities.

17. Lastly, I would recommend organizing as far as possible permanent brigades composed of one European and two Native corps of different castes, so as to bring the latter more in contact with, and at the same time more under the control of, the European regiment, while such an arrangement would offer great security to Government. The association between the European and Native soldiers which would follow would be productive of the best results, and in a force composed in this manner combinations would, I believe, be impossible.

18. In conclusion, I trust I may not be considered presumptuous in thus offering my views on this very important subject, deeming it the duty of every officer holding a responsible command in the army to submit the results of his own observation and experience where such may appear to be for the good of the service. I have not hesitated to lay before his Excellency the Commander-in-Chief the foregoing proposals, well weighed and considered, which, if carried out, I believe would place the organization of the Native army on a thoroughly safe and trustworthy footing.

No. 724.

FROM Lieutenant-Colonel E. B. Johnson, C.B., Officiating Adjutant General of the Army, to the Secretary to the Government of India, Military Department,—(No. 61A, dated Head Quarters' Camp, Peshawar, the 29th January 1862).

IN continuation of my predecessor's letter to your address, No. 1,357A, of the 19th October last, and with reference to previous correspondence on the question of the composition of Native regiments, I have the honour, by direction of the Commander-in-Chief, to state, for the information of Government, that his Excellency has recently been in personal communication on this subject with Brigadier General N. B. Chamberlain, C. B., commanding the Punjab Irregular Force, and Lieutenant-Colonel H. B. Lumsden, C.B., commandant of the corps of guides, and that the opinions of these officers are in accordance with and completely confirm his Excellency in his conviction, that the composition of Native regiments should be mixed.

2. Both Brigadier-General Chamberlain and Lieutenant-Colonel Lumsden,—who, I am to state, have given Sir Hugh Rose every proof of confidence and good-will,—inform his Excellency that they consider the mixed composition to be most necessary, and that the Guides, a corps which the Commander-in-Chief saw at Hotee Murdan, are constituted on this principle, as will be seen from the accompanying memorandum exhibiting their composition. Thus the cavalry, consisting of four troops, have one of Persians, one of Pathans, a third of Sikhs, and the fourth of mixed Hindoos. In the infantry, of which there are eight companies, the first is composed of Dogras, the second of Pathans, the third of Punjabees, the fourth of Afreedees, the fifth of Goorkhas, the sixth and eighth of Sikhs, and the seventh of all these tribes, mixed with Kafirs.

3. These officers state that they were induced to decide on this mixed composition for the best of all reasons—experience. Some time ago, when engaged in operations against certain Mahomedan tribes in the mountains, the Guides being at the time all, or principally, Mussulmans, an instance occurred on one occasion which proved in a very marked manner the danger of homogeneous composition. Some delay took place on our side before we were in a position to attack, which the enemy at once took advantage of, and endeavoured to induce the Guides to fraternise with them by appealing to their religious feelings; the attempt was sufficiently successful to cause anxiety to Brigadier-General Chamberlain and his officers, and it was found necessary to engage the Guides at once, to prevent this sympathy from extending further.

4. It was to prevent any similar risk for the future that the Brigadier-General, with the advice of his officers, determined on abolishing the homogeneous composition, establishing in its stead the mixed organization in regiments; and so far has it been considered advisable to adopt this course, that even in the Sikh regiments of the Punjab irregular force one half of each corps are not Sikhs, but are composed of different races, the other half being Sikhs, to keep up the national character of the regiment.

Memo. of the Composition of the Corps of Guides.

- **Cavalry** - 4 troops established strengh, 4 Ressaldars, 4 Ressaidars, 8 Jemadars, 8 Kote Duffadars, 48 Duffadars, 4 Trumpeters, 280 Sowars, 8 Camel Sowars. Total, 364 Sabres.
- **Composition**
  - 1st Troop Persians (Kuzilbashees).
  - 2nd „ Pathans.
  - 3rd „ Mixed Hindoos.
  - 4th „ Sikhs.
- **Infantry** - 8 Companies established strength, 8 Subadars, 8 Jemadars, 40 Havildars, 40 Naicks, 16 Buglers, 600 Sepoys. Total, 680 Rifles.
- **Composition**
  - 1st Company Dogras - - - Kangra and Jummo.
  - 2nd Company Pathans - - - Eusufzaies. Khuttucks. Mommuds. Gilzies.
  - 3rd Company Punjabees - - Mussulmans.
  - 4th Company Afreedees - - - Muclickdeen Kheyl. Kummer Kheyl. Kumbur Kheyl. Kokee Kheyl. Sepaie Kheyl. Bussee Kheyl. Adum Kheyl. Zukha Kheyl.
  - 5th Company Goorkhas.
  - 6th „ Sikhs, Manja and Mulwai.
  - 7th „ The above tribes mixed with 7 Kafirs.
  - 8th „ Sikhs, Manja and Mulwai.

Murdan, the 17th January 1862. (Signed) H. B. Lumsden, Lieut.-Col. Commdg. Guides.

No. 725.

From Lieutenant-Colonel E. B. Johnson, C.B., Officiating Adjutant-General of the Army, to the Secretary to the Government of India, Military Department,—(No. 227, dated Head Quarters, Simla, the 1st May 1862).

I am directed to acquaint you, for the information of the Right Honourable the Governor-General in Council, that on receipt of your telegram of the 23rd ultimo, sanctioning the completion of the 5th regiment Native infantry, the Commander-in-Chief proceeded instantly to carry out its instructions, and for this purpose called for the returns of remnants of disbanded regiments. On looking over the list of the 5th Regiment Native infantry, his Excellency found the numbers to be as follows:—

5 Subadars.	48 Naicks.
10 Jemadars.	14 Buglers.
26 Havildars.	121 Sepoys.

2. Taking into consideration that the races which composed these numbers had behaved with fidelity during the mutiny, for which reason the regiment had been retained, the Commander-in-Chief thought it advisable to adopt in this corps the "class company" composition, because the remnants amount to the strength of about 2½ companies; and as these men would probably prefer to remain together in their present companies, his Excellency considered it would be a gracious and proper act to leave them as they are, undisturbed, in two companies.

3. If the system of "general composition" had been adopted for this regiment, that is, that every company should be composed of a great variety of races and castes, the present companies of the regiment would have been broken up, and the men composing them have been dispersed among the eight companies forming a regiment.

4. Besides Sir Hugh Rose, after a long and most mature consideration (some three or four years) of the question of the composition of regiments, and having sought for and listened to most patiently the opinions of the most experienced officers on this subject, has, for reasons which he now submits to Government, come to the conviction, that although there is but one opinion that it is indispensable for the good conduct of the Native army that its composition should be a thorough mixture, yet on the other hand the opinions are so varied and different as to the mode or system of that mixture of composition, that it would be better and safer that the Government of India should not adopt for the army any one particular mode or system of composition, but allow of the general application of all these systems of mixture.

5. The Commander-in-Chief having adopted, for the reasons stated, therefore, the system of the "class company" composition for the 5th Native infantry, proceeded to look at the returns of remnants in the Adjutant-General's office, in view to the completion of the regiment on the following composition:—

2 Companies of the old regiment as now existing.
1 Company of Sikhs.
1 Company Punjabee Mussulmans.
2 Companies of low-caste Hindoos.
1 Company of Goorkhas or Hill-men.
1 Company of all races or castes.

But it appeared from the return of the remnants and the statement of Captain Fraser (officiating Deputy Adjutant General), who had drawn it up, that it would be scarcely practicable to complete a company of the particular castes above specified, from these remnants, not only on account of the paucity of the numbers, the whole amounting to only 352 Sepoys (of whom upwards of 200, moreover, were men of the old regular regiments not to be brought into the corps), but also because the localities where these remnants are stationed are, in most instances, so distant from the 5th Native infantry, that great inconvenience and loss of time must ensue before they could be collected at Umballa; an inconvenience which would be spared, if, as Captain Frazer had arranged, the men were to be drafted into the regiments at or near to the stations where they are now located.

6. Having stated therefore the causes which render impossible the immediate completion of the regiment, the Commander-in-Chief ventures to submit to Government, in detail, but as shortly as possible, the four great systems of mixture of composition of the Native army, advocated by the greatest authorities. Each is supported by an equal number of such able men, and the arguments which they use are respectively so good, that to decide between them in favour of one particular system is not very easy, and would, the Commander-in-Chief thinks, not to be very politic, more especially as the ground and basis of all these systems are one great culminating cause,—mixed composition,—on account of the just dread of Native combination against British power in India. But it will be seen that one of the systems, the "Regimental," though excellent in principle, is impracticable on account of the present reduced state of the Native army.

7. The four systems are—

Firstly.—"General mixture," that is, mixture of different races and castes throughout the companies of regiments; in other words, that each company should consist of a variety of races and castes. This may be called the Bombay system, and is strongly advocated by Colonel Malcolm, a first-rate Bombay officer, commanding a Bombay Native brigade. Colonel Malcolm, in order to make it understood how completely he wishes this system to be general, designated it as the "plum-pudding mixture."

In the Bengal army, two excellent officers who greatly distinguished themselves at Lucknow, Major Wilson, commanding the 7th Bengal Cavalry, from whom a report on the subject lately received is enclosed, and Major Langmore, commanding the late Allahabad Levy, are in favour of this composition.

8. It is objected to this system—

Firstly.—And I use the words of a good authority, Colonel Coke, that "by mixing the castes "in one corps, they become amalgamated, and make common cause, which they never would do "if kept in separate corps."

Secondly.—That the low-caste men, in consequence of being in a close contact with his religious superior, the Brahmin, almost invariably of a far higher order of intellect, and enjoying a far better social position, becomes submissive to him, and in cases of necessity an instrument to his designs.

9. On the other hand, the advocates of the "General Mixture" will not admit the validity of these objections, except only very partially, and declare that in most instances the contact has a different and a good effect, especially when promotion is given to merit and not to seniority; they say that the constant contact of the Brahmin, or men of high caste with men of low caste, in drill, guards, railroads, and duties of all sorts, of itself neutralises one rule and distinction of caste, namely, that a high-caste man cannot come into contact with a low-caste man without contamination, and they assert that the promotion of a low-caste man, for merit, to the rank perhaps of a Native officer, whilst the high-caste man remains a common soldier, as occurs constantly in the Bombay army, and his Excellency can state from his own experience, with excellent effect, lays low the pretensions of the high-caste, either to infallibility or to superiority. It is not a rare occurrence in the Bombay army, that in the morning the commissioned low-caste man does homage to the high-caste man, a private, and puts him in the guard-room in the evening for an offence, should he be ordered, or should he see right himself so to do. The Commander-in-Chief thinks that a very high caste and very clever Brahmin, a designing man, might do a good deal of mischief in a regiment badly disciplined, composed on the general mixture system; but that this would not occur in a well disciplined regiment, because discipline and ambition would prove themselves superior to caste.

10. It is further urged in favour of the "general mixture," that confederacy and combination which are the parents of mutiny, could with difficulty be carried out when a regiment is composed of a great variety of castes and races, each race acting as a clog and informant on the other; besides, the disaffected caste would fear to enter into a deep-laid, and would hardly be able to organise a wide-spread, conspiracy.

11. There can be no doubt that in the Bombay army the system of a "general mixture" has worked very well; but a condition of it must be promotion for merit, and not for seniority.

12. *Secondly.*—"Company," or as it is called in the Punjab "class company mixture," that is, that each company of a regiment should be of a different race or caste, one of Sikhs, one of Punjabee Mussulmans; another of Goorkhas or Affghans; a fourth of Hindoos, and so on. This sort of mixture is, generally speaking, the rule in the Punjab irregular force, and is advocated there by no less an authority than Brigadier-General Chamberlain; it exists also partially in the Bengal army, and is generally advocated by officers of that army.

13. It is objected to this system, firstly, that it maintains in some degree that which should disappear in the army, "caste," and renders easier and more likely confederacy and combination; because each company being composed of a different caste, could conspire without the fear of detection which must exist in a corps in which the general mixture of races and castes prevails,

and an isolated company, or a company in a very important position, might thus do a great deal of harm before its evil influence would be counteracted by a company of another caste.

14. The advocates of a "class company" mixture argue that the low-caste man, being isolated from the high-caste man in his company, is therefore independent and removed from his noxious influences, should the latter be evilly disposed; that considerable apprehension is at present entertained that the Sikhs, who are now nothing but a protesting element against Hindooism with its caste prejudices, and Mahomedanism with its spirit of domination, are yielding up their (to us) valuable characteristic, and relapsing into their former Hindooism; and his Excellency has been advised by those who know the Sikhs well, not to keep them, for this reason, too long in Hindoostan.

15. In this sense many consider it advisable that the Sikhs should be in class companies.

16. Although the class company system has not had much experience on the whole, it may be said to have worked well.

17. *Thirdly.*—"Regimental mixture," that is, that each of the regiments in a brigade should be composed of one different caste or race; for example, one regiment of Goorkhas, another of Sikhs, another of Oude men, another of Affghans, &c. Sir Hugh Rose does not think that this system has ever been practically tried. It is advocated by two good authorities, Sir Sydney Cotton and Sir Herbert Edwardes; but they modified their opinion on Sir Hugh Rose observing to them that it would be difficult to carry out this system, because in India there are very few stations in which more than one regiment of Native infantry is located. They allowed that a brigade must be concentrated, in order to make the system work well; because if each regiment of a brigade were to be stationed in a different locality, one could not control the other; and one disaffected regiment might effect great harm before a regiment of the brigade of a different race or caste could be brought up against it. His Excellency thinks that this objection is fatal to the adoption of this system in India.

18. *Fourthly.*—The "village system," as the Commander-in-Chief believes it is called, from regiments being composed of the inhabitants of a village or district. The late Lord Elphinstone was very much in favour of this system, because he was a great admirer of its advocate, Sir Hector Munro. Sir Charles Wood is also an advocate of it.

19. An objection to this system is, that as a general system, it is untried for an army; and, secondly, that as an Indian army is recruited from the military races of particular provinces, any cry or cause agitating those provinces would find a re-echo in the regiments composed of the villages of those districts; for example, in the event of a Punjab cry, it would be safer that the Sikh soldiers should be dispersed and controlled in the Native regiments, than that as a little army of Punjab regiments, they should be under the influence of a Punjab cry, and it was seen in the mutiny that the cause or cry of the King of Oude agitated all the villagers of Oude in the regiments recruited from them.

20. On the other hand, Lord Elphinstone, I am to observe, used to argue very ably in favour of the system that a Native regiment, recruited from a village or particular district, is isolated and cut off from the influence of intrigue and disaffection, and had nothing in common with the regiments recruited in a similar manner; that intercourse between villages in India is rare, and that the instances are frequent of inhabitants of one village never having visited another at only a few miles distant from it. That consequently, regiments recruited, each regiment from its village, would sympathise but little with regiments even from neighbouring villages, and not at all with regiments of the mass of the army recruited from districts at a distance; that, consequently, the regiments of an army, in event of a mutiny or insurrection, would, without hesitation, act against each other. A condition of the village system, as stated by Lord Elphinstone, was that the regiments can always return sooner or later to the villages or districts from which they were recruited, which were to be considered their permanent head-quarters and stations. Sir Hugh Rose is of opinion that this condition would make the army too local to be perfectly military.

21. In reviewing these four systems, it will be seen that the third, that is the "regimental mixture," is impracticable on account of the distribution of the army in India.

22. The fourth or "village system," although not the general system, is already in partial adoption; witness the Shekhawattee, Loodianah, and Kumaon regiments, &c., and it is true that these regiments, like all the rest of the army, are regularly recruited; but nothing as yet has been done to divest them of their village characteristics; recruiting only has been stopped, but that is general for the whole of the army.

23. Before going further, the Commander-in-Chief thinks it apposite to forward for submission to his Excellency the Viceroy in Council, an extract from a remarkable letter from Lieutenant Colonel Wilde, C.B., lately promoted to the Corps of Guides, as bearing directly and forcibly on the subject under review.

"The guiding principle in organizing one Native army should be diversity of combination and a strict avoidance of an approach to an uniformity in its social construction. The greater the number of creeds, the wider the nationalities, the more the mixture of races we gather under our standards, the stronger and more effectual will be our hold over these mercenaries. Select a plan and make all regiments of one kind politically, and the whole army (as of late) can be stirred with the same animosities, and swayed by the same madness. Differently organized as to the material, though alike in discipline and uniform, a chance still remains, that where one regiment is ruined by the enthusiastic teaching of a 'moolah,' or tainted with the superstition of a Brahmin, the next corps to it, differently composed, will escape the contagion 'divide et impera.'"

"To elucidate, some corps should be composed of classed, some of mixed companies. In some the Mussulman element should preponderate, in others the Sikh and Hindoo. Again some corps

should be all Goorkhas, others all Muzbees, all Native Christians, all high castes, all low castes. Each has its hour of use according to circumstances and localities, and each is capable of being made to destroy the other."

24. His Excellency begs to add, that Brigadier-General Chamberlain expressed himself to him in the highest possible terms of Lieutenant-Colonel Wilde, as not only a first-rate officer, but also a man of excellent judgment in all matters.

25. It may be right to recall here to the attention of the Government of India, that in a letter lately addressed to you on the subject of the irregular force, the Commander-in-Chief stated that Brigadier-General Chamberlain had informed him that, though he considered it advisable to keep up the national composition of certain regiments, yet, with a view to guard against the danger of homogeneousness, whilst he allowed half the regiment to be Sikh, in order to preserve its nationality, the other wing was composed of different races.

26. Following out this principle, Sir Hugh Rose ventures to propose that in order to keep up the "village system," regiments recruited from villages and districts should be composed on the above system, namely, half from the particular village or district, the other half of recruits drawn from the country generally. The rest of the Native army, not at present recruited from particular villages or districts, might advantageously be composed on the "general mixture," and the "class company" system.

27. Referring to the present state of the Bengal army, it appears that of 48 regiments of Native infantry,

16 are Sikh and Punjabee.
4 Goorkhas.
14 old Poorbeeah regiments, including the Lucknow and Loyal Poorbeeah regiments.
6 are old local battalions and 8 are levies.

28. With a view to balance the systems equally, the Commander-in-Chief would propose that a proportion of the 14 old regular regiments, of the Sikh regiments, and the Goorkhas, should represent the village system.

29. It is for the Government to decide whether the Goorkha regiments shall remain purely Goorkha. The pure Goorkha, as his Excellency has heard from Colonel Reid, and the best authorities on this question, is from Nepal.

30. As regards the "company mixture" and "general mixture," his Excellency proposes that the rest of the regiments should be organized equally on both systems, care being taken that the regiment of an officer, who is particularly impressed in favour of one or other of these systems, should be organized on that system.

ABSTRACT.

Wanting in all ranks to complete deficiencies in establishments of existing corps	5,085
Deduct—	
Supernumeraries in existing corps	560
Total number of all ranks wanting to complete existing corps	4,525
Deduct—	
Remnants of disbanded corps of all ranks for disposal	804
Total number of deficiencies	3,721

31. In conclusion, it will be seen from the annexed abstract, that the total number of deficiencies in the Native army (infantry) is 4,525 of all ranks, and that the number available for transfer from disbanded regiments is only 804. It will be advisable, therefore, his Excellency ventures to express his opinion, that recruiting should at once be recommenced, for which measure he solicits the sanction of Government.

32. A report on the composition of cavalry regiments will be sent hereafter.

MEMORANDUM.

AT the desire of his Excellency the Commander-in-Chief (personally expressed), with diffidence I submit the following views relative to the future composition of the Native army.

I presume that, as a general principle, it is desirable for Her Majesty's Indian Government to open the ranks of its Native army to all races, tribes, religions, and castes which may desire to enter them and may be endowed with the requisite physical courage and development.

The question then to be considered is—would it be preferable to divide our soldiers recruited from all parts of the country, into homogeneous regiments or troops, each composed of men identical in race, country, religion, and caste; and in associations, feeling, and aspirations, or on the other hand so to break them up as to include in *each* troop or company, portions of the several elements which compose our army as a whole. The former system prevailed almost universally previous to the mutiny, regiments being recruited constantly from the same districts until they became one great brotherhood, and but for the incalculable assistance which this gave to the scheming and clever malcontents who existed in every regiment, and by whom a large majority in it was swayed, there is little doubt no such general rising as occurred in 1857 would have been possible.

As far then as the races and religions are concerned whence previous to the mutiny our army was almost exclusively recruited, experience has proved that it was to the last degree ill-judged to allow them to band themselves together into family regiments. That some advantages may obtain from homogeneity is not to be denied; but they mostly affect individual corps as such, rather than contribute to the well-being and safety of the State; such regiments in time of peace will probably give little trouble and be quiet and orderly. They will be free from religious bickerings and contentions due to partialities, real or imaginary; they will also be likely to fight well when led against the traditionary enemies of their race or religion.

The difficulties attendant on the mutiny surmounted, new elements have been largely infused into the Native army, as a late Governor-General observed in his farewell minute, it is impossible to say even at a time of the most profound peace whence some new danger may not threaten the State. If an outbreak were to occur among the Sikhs, it surely would greatly enhance the

difficulties of our position, were there to be in our army several regiments composed entirely of Sikhs, ready to throw off their allegiance at a moment's notice and on the least temptation. The same holds good of other races and religions. It is no doubt desirable to attract to the ranks of our army, Affghans, Sikhs, Punjabee Mahomedans, and Puthans; races renowned for courage and good physical development. A regiment composed of the old elements combined with these new ones would have great advantages; it would make conspiracy or combination in it being difficult, and its composition would probably defeat such; even if it occurred, there would be that great incentive to excellence a spirit of emulation. They could not as a body be discontented with the part of the empire they were quartered in, as one section would prefer being near their homes, say in Punjab, another near theirs in Oudh. Each commanding officer would have opportunities of becoming acquainted with the views of the several races as represented in his corps, a thorough mixing up of the various religions would have a tendency to conduce a spirit of toleration, while separation must have a totally different effect. The formation of homogeneous regiments is open to the further objection, that it encourages a spirit of independence leaving them where many are drawn from the same source to an exaggerated estimate of their value and services, and even to a belief that they have become indispensable to the State.

By mixing them in troops, rather than having each troop composed of a distinct class, then discipline would, I think, be better preserved; jealous of the influence possessed by each, they would be more prone to report what perhaps would otherwise be screened, and a commanding officer would learn more of what is going on in his regiment and of the state of feeling in the corps, than he is ever likely to do, should the troops be composed each of a distinct class.

(Signed) T. F. Wilson, Major,
Mooltan, the 7th March 1862. Comdg. 7th Bengal Cavy.

No. 726.

From Lieutenant-Colonel E. B. Johnson, C.B., Officiating Adjutant-General of the Army, to the Secretary to the Government of India, Military Department,—(No. 757, dated Headquarters, Simla, the 15th August 1862).

With reference to your telegram of the 19th ultimo, I am directed to state, for the information of the Right Honourable the Governor General in Council, that in carrying into effect the proposed arrangements for the future composition of the Native army, as submitted in my letter No. 227, dated 1st May last, the Commander-in-Chief would prefer the enunciation of the decision of Government on this question in the form of a circular rather than a general order, because its publication in a general order would, almost to a certainty, call forth comments in the Native, if not in the European, press, which would be prejudicial, inasmuch that it would be impossible to disguise that the mixed composition recommended to be introduced in the Native army is based on a policy, that policy being in fact one of mistrust of the native character, and to neutralize the chances of combination and conspiracy of Native soldiers against the Government by means of a mixture in regiments of antagonistic races and castes.

2. His Excellency is of opinion that the composition of each regiment should be made known to commanding officers by means of confidential circulars, each commanding officer being specially instructed as to the measures he should adopt for recruiting and carrying into effect the particular constitution that may be decided on for his regiment.

3. With this view the Commander-in-Chief proposes, with the sanction of Government, to issue a confidential circular, of which a draft is submitted for approval; particular and detailed instructions being added in regard to the class from which each regiment will be recruited.

4. As regards the number of regiments to which each of the three systems of mixed composition is to be applied, Sir Hugh Rose would recommend that:—

Firstly. The whole of the Punjab and Sikh regiments, with the exception of the 23rd and 32nd pioneer Corps), regarding which a future reference will be made the 13th (or Shekhawatee) Regiment, the 42nd and 43rd (Assam) and the 44th (Sylhet) regiments shall be constituted on the "district" system already obtaining in those regiments, modified on the principle suggested in the third clause of paragraph 2 of the accompanying circular, and the 26th paragraph of my letter No. 227, that is, half of each regiment to be district, the rest mixed.

Secondly. That the newly raised regiments or levies, nine in number, and three of the older or regular regiments, namely, the 2nd, 3rd, and 4th, shall have the class company system, which already obtains among the former to some extent; and

Thirdly. That the remaining regiments shall have the "general mixture" composition defined in the seventh and four following paragraphs of my despatch above quoted, and in the 1st clause, paragraph 2, of the circular.

5. Thus there will be on the "district" system - - - - 18 regiments.
On the "class company" system - - - 12 ditto.
On the "general mixture" system - - - 12 ditto.

6. The Commander-in-Chief has selected the levies for the class company system, because some of them already have this constitution, and moreover because the class company system, isolated bodies, obviates the objection brought against the system of general mixture, that the low-caste men, from being in close contact and mixed up with higher castes, lose their individuality and become subservient to the superior moral and social position of men of higher caste.

7. The general mixture is recommended for the majority of the older regiments, because they are already partially recruited and organised on that system; and therefore little trouble will be required to introduce it wholly.

8. Sir Hugh Rose has not included the Goorkha regiments in these arrangements as his Excellency believes that the Government have already decided on their composition.

9. Should the Right Honourable the Governor-General in Council approve of this division of systems, and of the circular memorandum attached, the Commander-in-Chief will give such further detailed instructions as may be necessary for carrying out the measure.

10. His Excellency desires me to add, however, that the changes can only be carried out gradually, the existing composition of the several regiments not admitting of the immediate introduction of these changes in their integrity.

11. Meanwhile, with a view of obtaining accurate information as to the classes of which each regiment is now composed, which the returns now sent in do not afford, not being sufficiently comprehensive, his Excellency has called for caste returns from each corps, which will supply all necessary particulars. A copy of the return is enclosed.

12. As regards general mixture, one important fact remains to be elucidated and decided, that is, the number of each class or race which should be allowed in one regiment.

A regiment of infantry consists of 712 of all ranks. The Commander-in-Chief thinks that the rule which would best guarantee the principle of general mixture is that not more than one-seventh of one class should be allowed in a regiment.

13. There is also one most important point in connexion with the composition of the Native army which the Commander-in-Chief desires to submit to the superior attributes of the Government, as being a mainly political question; that is, should the Brahmins, as a sacerdotal race, be admitted into the army, and if so, in what proportion.

14. There are undoubtedly many instances of Brahmins having proved excellent and clever soldiers. On the other hand, there is no doubt that of the race in question, a greater proportion have used their immense, because a religious, influence in a manner which has been most detrimental to the efficiency and discipline of the army, and the Commander-in-Chief believes that the majority of the officers of the greatest Indian experience, consulted by the Government as to the re-organization of the army, recommended that the Brahmins should not be allowed into the ranks of the army.

15. Sir Hugh Rose ventures to think that they cannot claim as a right the privilege all the rest of Her Majesty's subjects have of serving in the army, because they are a priestly race. They are in fact on the footing of the Levites.

16. At any rate, should the Government be pleased to decide that they may be allowed to enter the ranks, the Commander-in-Chief thinks it most desirable that it should be most distinctly laid down in what proportion they should be permitted to enter into the composition of the army. His Excellency must think that any proportion such as that suggested in regard to other classes and races, namely, one seventh in an infantry and one fifth in a cavalry regiment, would be hazardous.

CONFIDENTIAL CIRCULAR MEMORANDUM.

The Government of India have determined that the composition of the Native army shall for the future be *mixed.*

2. This will be carried out in the following manner :—

I.—The composition of certain regiments will be on the system of "general mixture," that is, indiscriminate mixture in troops and companies of regiments of all races.

II.—Mixed composition on the system of "class troops" or "companies," that is, that each troop or company, or two troops or companies, but not more, of a regiment on this system shall be of a different race or caste; for instance,

1	troop or company	of	Hindoos.
1	„	„	of Goorkhas.
1	„	„	of Sikhs.
1	„	„	of Punjabee Mahomedans.
1	„	„	of Hindostanee do.
1	„	„	of Jats.
1	„	„	of Afredees or other Trans-Indus tribes.
1	„	„	of Hindoos of low or inferior caste, such as Goozurs, Lodhs, Muzbees, Ramdasees, &c., or as the case may be.

III.—The "district" system, that is, that a regiment shall be recruited from a certain district or race, such as the Punjab and Sikh regiments, the Loodiana and Ferozepore regiments, the Shekawattee battalion, &c. This system, although divested of mixture in a great degree as regards individual regiments, is still a mixture with reference to other regiments of the army not so composed.

To obviate the evil, however, arising from homogeneousness in these regiments, and on the other hand to keep up as much as possible the advantages of the "district" or national system, among which *esprit de corps* may be classed, half of the troops or companies of a regiment composed on the "district" system will be recruited from its district, and the other half on the "general mixture" system.

3. All these regiments, under whatever system they may be organised, will retain their present designations.

4. The only exceptions to the above rules of composition will be the 1st, 14th, and 15th Regiments of Bengal Cavalry. These three regiments are at present exclusively on the class system, and it has been considered advisable that they shall retain such composition.

5. The Commander-in-Chief has been requested to carry out the details of this measure, and to report to the Government of India his method of doing so.

(Signed) E. B. Johnson, Lieut.-Colonel,
Offg. Adjt. Genl. of the Army.

To officers commanding divisions and regiments.

Circular from Lieutenant-Colonel E. B. Johnson, C.B., Officiating Adjutant General of the Army, to the Officer Commanding, (No. 4495, dated Head-quarters, Simla, the 14th August 1862.)

In substitution of the caste returns now forwarded to the office of the Adjutant-General of the Army, Simla, with the monthly returns of the regiment under your command, I am desired to request that a caste return of the following form may henceforth be appended thereto, and a copy, carefully filled in, forwarded to me with as little delay as possible.

I am at the same time to inform you that copies of this caste return are not required in the office of the Adjutant-General of the Army, Calcutta, to which the form of caste return laid down in general order by the Commander-in-Chief of 3rd August last, is to be regularly furnished as heretofore.

Caste Return of the Regiment for the Month of 186 .

	Caste.	Native Officers.								Non-Commissioned Officers.								Drummers or Buglers and Sepoys.								Remarks.
		No. 1 Company.	No. 2 Company.	No. 3 Company.	No. 4 Company.	No. 5 Company.	No. 6 Company.	No. 7 Company.	No. 8 Company.	No. 1 Company.	No. 2 Company.	No. 3 Company.	No. 4 Company.	No. 5 Company.	No. 6 Company.	No. 7 Company.	No. 8 Company.	No. 1 Company.	No. 2 Company.	No. 3 Company.	No. 4 Company.	No. 5 Company.	No. 6 Company.	No. 7 Company.	No. 8 Company.	
Hindostan.	Christians																									
	Mussulmans																									
	Brahmins																									
	Rajpoots																									
	Jats																									
	Mahrattas																									
	Goorkhas and Hill men																									
	Koormees																									
	Lodhs																									
	Aheers																									
	Goojurs																									
	Gudduriyas																									
	Dhanooks																									
	Pasees																									
	Koormees																									
	Choomars																									
	Mehturs																									
	Hindoos of other Castes																									
Cis-Sutlej.	Mussulmans																									
	Sikhs																									
	Brahmins																									
	Rajpoots																									
	Khutrees																									
	Lobanas																									
	Ramdasees																									
	Muzbees																									
	Hindoos of other Castes																									
Punjab.	Mussulmans																									
	Towanas																									
	Sikhs																									
	Brahmins																									
	Rajpoots																									
	Khutrees																									
	Muhtons																									
	Lobanas																									
	Muzbees																									
	Dogras and Hill men																									
	Hindoos of other Caste-																									
Trans-Indus.	Within Territory.																									
	Without Territory.																									
	Here the different Trans-Indus tribes represented in Regiment are to be enumerated, such as Afreedees, Momunds, Eusufzaie Pathans, Wuzeerees, Sheoranees, Kybereen, Persians, &c. &c. &c.																									

N.B.—Bunghurs to be included under head Mussulman.

In Cavalry Corps number of columns to correspond with number of Troops, and heading "Drummers, &c.," to be altered to "Trumpeters" and "Sowars."

Any castes not named above, are to be included in the proper place, if represented in Regiment furnishing the Return.

Exd.

Adjt. Regt. Commanding Regt.

No. 727.

FROM Lieutenant-Colonel E. B. Johnson, C.B., Officiating Adjutant-General of the Army, to the Secretary to the Government of India, Military Department,—(No. 836, dated Headquarters, Simla, the 28th August 1862.)

WITH reference to paragraphs 1 and 2 of letter No. 506, dated the 14th August 1862, from the Military Department, the Officiating Adjutant-General of the Army is desired to refer Secretary Lieutenant-Colonel Norman, C.B., to this office letters Nos. 757 and 758, of 15th instant, submitting the Commander-in-Chief's final views on the system of recruiting to be in future adopted in the Native army, and to state that on its being notified to this department that his Excellency's recommendations are approved, no time will be lost in allotting to existing cavalry regiments the men of disbanded cavalry corps.

2. In reply to paragraph 3, Lieutenant-Colonel Johnson is directed to intimate that agreeably to the permission contained in general order by the Commander-in-Chief of 30th December 1859, recruiting is being carried on in the four* Goorkha regiments, that the establishment of one is complete, and that of the other three only slightly below its proper complement.

		Sepoys.
*1st Goorkha Regiment—	deficient	7
2nd	ditto complete.	
3rd	ditto deficient	17
4th	ditto ditto	17

No. 728.

FROM Major-General A. Becher, C.B., Quartermaster-General, to the Secretary to the Government of India, Military Department,—(No. 3668, dated Head Quarters, Simla, the 11th September 1862).

I AM directed to forward a copy of a communication, No. 1194C, dated 26th ultimo, from the Secretary to Punjab Government, Department Public Works, conveying the Lieutenant-Governor's approval of the services of the officers and men of the 23rd Punjab Pioneers now employed on the Sutlej Valley roads, and to request that you will submit the same to Government with an expression of the Commander-in-Chief's cordial approbation of the zealous exertions of Captain Chamberlain and Lieutenant Bates, as well as of the men under their command.

I am to take this opportunity of drawing the attention of Government to the opinion expressed by his Excellency through the Adjutant-General of the army, regarding the utility of Pioneer Corps for military employment of an engineering character, an opinion which is fully confirmed by his Honour the Lieutenant-Governor.

FROM Lieutenant-Colonel R. Maclagan, Secretary to Government, Punjab, Public Works Department, to the Quartermaster-General,—(No. 1194C, dated Murree, the 26th August 1862).

IN the Executive Officer's report of progress on the works of the Sutlej Valley road during the month of July, the services of Captain Chamberlain and Lieutenant Bates, as well as of the pioneers under their command now employed upon that road, are very favourably mentioned, I am desired by his Honour the Lieutenant-Governor to express to his Excellency the Commander-in-Chief his sense of the great value of the services both of officers and men and of their zealous exertions during a trying season in pushing on the works of this important road.

No. 729.

FROM Lieutenant-Colonel H. W. Norman, C.B., Secretary to the Government of India, Military Department, to the Officiating Adjutant-General of the Army,—(No. 852, dated Fort William, the 25th November 1862).

I HAVE the honour to acknowledge the receipt of your letter, No. 757, dated 15th August 1862, forwarding a draft confidential circular memorandum relative to the future composition of the Native army in Bengal.

2. In reply, I am to acquaint you that the Right Honourable the Governor-General in Council concurs with his Excellency the Commander-in-Chief in thinking that such changes, as may be contemplated in the composition of the Native regiments will be more advantageously carried out by means of confidential circulars than through the publication of a general order.

3. Any plan now adopted must, I am to remark, be more or less experimental, and subject to modification. When a system has, on actual experience, been found to work well, it may be publicly authorised, and rendered permenant by means of a general order.

4. Before considering his Excellency's propositions in detail, I am directed to premise that two highly important points should be kept steadily in view, viz., the present weak state of many of the regiments, and the present position of those who form them.

5. As regards the first point, and with reference to the unavoidable delays which have occurred in dealing with this most important subject, it must be equally felt by his Excellency, as by the Government of India, that it is of much importance that the Native army should now be recruited

up to its full strength at the earliest possible period, consistently with the means of securing good material.

6. As regards the second point, the Governor-General in Council bears in mind that there are many soldiers of existing regiments which have remained faithful and have done good service during the mutiny, and who consequently possess strong claims to consideration, besides having served much longer than the great majority of the soldiers of the recently raised regiments, his Lordship in Council considers it to be important, therefore, that the existing rights of these deserving soldiers, and the efficiency of the more complete regiments, should not be injured by any violent or sudden change; and is desirous that the position they hold with regard to promotion in their respective regiments shall, in as full a degree as possible, be preserved to them.

7. In this view his Lordship in Council is prepared to adopt, with some modifications, his Excellency's proposals as the basis of a system which is ultimately to prevail generally, but which, on its introduction, should be subordinate to existent and just claims.

8. The Bengal army, I am to remark, falls into three divisions, viz., the Goorkhas and Hill troops, the troops raised Trans-Jumna and those raised Cis-Jumna; four of the first, 16 of the second, and 28 of the third,* but this is of course exclusive of Punjab regiments not under his Excellency the Commander-in-Chief, 11 in number; and it is to be borne in mind that in some of the corps recruited Cis-Jumna, there are soldiers who belong to the Punjab.

* 1. The 4th Goorkha Corps.
2. 14th, 15th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st and 32nd = 16 corps raised Trans-Jumna.
3. 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 16th, 17th, 18th 33rd, 34th, 35th, 36th, 37th 38th, 39th, 40th, 41st, 42nd, 43rd, and 44th = 28.

It is considered that no alteration need take place in this system of dividing the army; and that the recruits for all the corps included in the 2nd and 3rd divisions, should be raised Trans or Cis-Jumna, as at present.

9. The Native Infantry may be again sub-divided for the purposes of recruiting as follows:—

1st. Special corps, as the Goorkha and Muzbee Sikh regiments, six in number.†

2nd. The Hindoostanee regiments that have not dwindled to mere skeletons, nine in number, and the 14th and 15th regiments, which consist almost entirely of Sikhs.‡

3rd. The Punjab regiments raised in 1857–58, and the Assam and Sylhet corps, 15 in number.§

4th. The remaining regiments of the Bengal infantry, which are either now on the class company system, or are so weak that their constitution can be altered to that system without much difficulty. These are 16 in number.‖

† 1st, 2nd, 3rd, and 4th Goorkha regiments, 23rd and 32nd Native Infantry = 6.

‡ 1st, 2nd, 3rd, 4th, 7th, 11th, 12th, 16th, and 17th Native Infantry (Hindoostani); 14th and 15th Native Infantry (Sikh) = 11.

§ 19th, 20th, 21st, 22nd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, and 31st Native Infantry (Punjab regiments 42nd, 43rd, and 44th Native Infantry (Assam and Sylhet Corps) = 15.

‖ 5th, 6th, 8th, 9th, and 10th (all Hindoostani) 13th (Shekhawatee battalion), 18th, Allipore regiment, 33rd, 34th 35th, 36th, 37th, 38th, 39th, 40th, and 41st Native Infantry (all levies raised in 1858) = 16.

10. The Governor-General in Council considers that recruiting may at once commence in all regiments, under the following conditions:—

Class 1 or corps specially recruiting from one class or race should continue to confine their enlistment entirely to that class. Class 2, which answer somewhat to the district corps of his Excellency, should continue on the same organization as at present, viz., the Hindoostani corps will recruit from the classes of which they are now composed, and the two Sikh regiments from Sikhs; and the Government is of opinion that no alteration in the constitution of these corps need take place.

The third class should likewise be directed to complete their numbers generally from the classes of which they are at present composed, and may be considered what is termed "general mixture regiments." It does not appear desirable to lay down minute rules as to the proportion of each class to be enlisted in these regiments, but in those of them recruiting from the Punjab, the Governor-General in Council is of opinion that neither of the two great divisions of which they are composed, Sikhs and Mahomedans (Punjabee or Border), should ever be allowed to exceed one-half the complement of the regiment, and that not more than an eighth of the regiment should consist of Mahomedans from beyond the frontier, while there should be, as far as possible, a proportion of Dogras of an eighth or thereabouts. The Assam and Sylhet corps being intended principally for service in those districts should recruit in their own neighbourhood, and from hill men, but they should be restricted as respects the Hindoostani element to one fourth of the strength of the regiments.

The last division of corps are proposed to be on the class company system,* nine are already on this system and can recruit in the same manner as at present.

* 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, and 41st Native Infantry.

The other seven corps are so weak that there will be no difficulty in forming them into class companies, and they may recruit generally from the classes who take military service in Hindoostan, one or two companies in each regiment consisting of Brahmins and Rajpoots (who are so much alike in appearance and habits), one or two companies of Mahomedans, and the remainder of each regiment of such other classes formed into companies, as his Excellency may think proper. The companies in these regiments which now exist should not be disturbed to the prejudice of the other Sepoys, but gradually completed by recruiting, hereafter, as vacancies arise, to their full strength in the proper class.

11. Under a system of recruiting and organization like the above, the Governor-General in Council is of opinion that sufficient provision is made against too great a preponderance of any one race or class, as well as against too great a uniformity in the composition of the Native infantry, while no great change injurious to the men now serving is in any way involved.

12. The promotions should of course go on without reference to caste or race, the senior fit man, whoever he may be, obtaining it. This will be necessary even in the Hindoostani corps now to be formed into class company regiments, and will for some time to come cause companies of one class to have officers or non-commissioned officers of another class. This, though apparently inconvenient, may not be without its counterbalancing advantages; but as opportunity offers and by transfers *in the regiment*, these corps may be gradually brought to consist purely of companies of particular classes.

13. The Governor-General in Council is anxious that no time should be lost in giving orders for corps to recruit to their proper strength, as the difficulty of the subject has already led to considerable delay; and the circumstance of many corps being so weak renders them quite inefficient, while it overworks the men, at the same time that the cessation of all recruiting must tend to unsettle their minds.

14. The suspension of recruiting for a considerable period must, however, have had the effect of increasing the number of able-bodied young men available for the army; and I am to request that strict orders may be given to enlist none but men whose physical appearance in every respect gives promise of their turning out efficient soldiers. His Lordship in Council believes that the pressure of the times led to many men being enlisted in 1857–58, who are in "physique" not what soldiers should be, but at present there can be no excuse for a commanding officer who enlists any man who is not unexceptionable.

15. In conclusion, I am directed to inform you that, if the Commander-in-Chief approves, the Government are prepared to sanction any one of the present weak regiments of infantry being reformed as a pioneer corps (in addition to the 23rd and 32nd regiments, which are now pioneers) provided the measure will not interfere with the immediate commencement of recruiting.

No. 853.

COPY of the foregoing forwarded to the officiating chief of the Military Finance Department for information.

No. 730.

FROM Major H. K. Burne, Deputy Secretary to the Government of India, Military Department, to the Officiating Adjutant-General of the Army,—(No. 920, dated Fort William, the 26th November 1862).

I AM directed to acquaint you that a telegram to the following effect has this day been despatched to you:—

"The instructions of Government relative to recruiting for the Native infantry to go to headquarters by to-day's post. Government are anxious that his Excellency should direct enlistment to commence as soon as possible after receipt of my letter."

APPENDIX N.

NUMBER of Officers appointed Probationers for the several Staff Corps from 1st January 1870 to the 31st May 1875.

Year.	Bengal.		Madras.		Bombay.		Remarks.
	Appointments.	Ceased to be probationers.	Appointments.	Ceased to be probationers.	Appointments.	Ceased to be probationers.	
1870 -	50	6	17	3	24	1	
1871 -	36	6	6	—	20	1	
1872 -	18	1	—	—	19	1	
1873 -	17	2	3	3	6	1	
1874 -	43	2	3	1	12	—	
1875 5 months	21	1	—	—	2	—	
Total -	185	20	29	7	83	4	

NUMBER of Officers of Regiments serving in the Madras and Bombay Presidencies appointed to the Bengal Staff Corps since 1871.

Year.	From Madras.	From Bombay.	Remarks.
1871 - -	1	1	
1872 - -	1	—	
1873 - -	1	—	
1874 - -	4	4	
1875 - -	3	2	
Total -	10	7	

NUMBER of Officers of Regiments serving in the Bengal Presidency appointed to the Madras and Bombay Staff Corps since 1871.

Year.	To Madras.	To Bombay.	Remarks.
1871 - -	—	5	One of these rejoined his regiment in Bengal.
1872 - -	—	10	
1873 - -	—	1	
1874 - -	2	5	
1875 - -	—	1	
Total -	2	22	

APPENDIX O.

RETURN of Officers of the Indian Army now holding Military Staff Appointments, but who, not belonging to Regiments, will become unemployed on the termination of their tenure of Staff Employment.

Date of First Commission.	Rank, Name, and Corps.	Date of Appointment.	Appointment.	Date on which Tenure of Appointment will expire.	Regiment to which attached before joining Staff.	Length of Service with Corps. Yrs. Mos.
20th Oct. 1858	Capt. G. C. Jackson, late 2nd E. L. Cav.	4th May 1872	A.D.C. to the Viceroy	4th May 1877	12th Bengal Cav.	4 6
20th Jan. 1862	Capt. the Hon. R. W. Napier, G. L. Inf.	25th April 1870	A.D.C. to the Com.-in-Chief.	25th April 1876	13th „	5 2
10th Dec. 1839	Col. T. Rattray, C.B., C.S.I., Staff Corps.	5th Mar. 1874	Asst. A.G. Offg. Dy. Adjt. General.	10th Dec. 1877 on attaining Col.'s allce.	42nd N. I. -	8 2
11th May 1855	Major H. Thompson, Staff Corps.	25th May 1872	Deputy Asst. Adjt. General.	25th May 1877	39th „ -	7 6
20th Jan. 1857	Capt. G. L. K. Hewett, Staff Corps.	27 Mar. 1874 / 30 Sep. 1871	Off. Depy. Asst. Adjt. Gen. Brig. Major.	30th Sept. 1876	2nd Bengal Cav.	10 2
7th June 1844	Col. C. C. Johnson, Staff Corps.	15th Nov. 1874	Dy. Quartermaster General.	15th Nov. 1879	Never served with a Native regiment under present organization.	
20th Oct. 1856	Lt.-Col. C. M. MacGregor, Staff Corps.	6th Mar. 1875	1st Asst. Quartermaster General.	6th Mar. 1880	10th Bengal Cav.	2 9
20th Dec. 1854	Major M. H. Heathcote, Staff Corps.	6th Jan. 1872	Asst. Quartermaster General.	6th Jan. 1877	1st „	1 2
8th June 1855	Capt. H. Collett, Staff Corps.	6th Jan. 1872	Dy. Asst. Quartermaster General.	6th Jan. 1877	21st Nat. Inf. -	13 1
4th Jan. 1860	Capt. H. B. Hanna, Staff Corps.	26th Feb. 1873	Do. do.	26th Feb. 1878	11th Bengal Cav.	0 5
16th Mar. 1855	Major H. A. Little, Staff Corps.	13th May 1873	Do. do.	13th May 1878	37th Nat. Inf. -	0 4
19th Dec. 1860	Capt. J. M. Trotter, G. L. Infantry.	12th Oct. 1873	Do. do.	12th Oct. 1878	24th „ -	10 7
20th Mar. 1855	Major F. W. Boileau, Staff Corps.	18th Oct. 1873	Do. do.	18th Oct. 1878	12th Bengal Cav.	10 5
2nd Oct. 1860	Capt. M. J. King-Harman, Staff Corps.	5th Jan. 1875	Do. do.	5th Jan. 1880	2nd Goorkhas -	1 8
26th Aug. 1858	Lt.-Col. G. T. Jones, Bengal Infantry.	23rd Feb. 1875	Off. Gar. Qr. Mr., Fort William.	- - -	41st Nat. Inf. -	1 5
17th Aug. 1852	Major C. H. S. Scott, Staff Corps.	20th Mar. 1873	Assistant Adjutant General.	20th Mar. 1878	3rd Goorkhas -	0 11
20th Feb. 1850	Major C. W. R. Chester, Staff Corps.	27th Oct. 1874	Do. do.	27th Oct. 1879	4th Goorkhas -	0 9
7th Feb. 1843	Col. A. G. Forsyth, Staff Corps.	28th May 1875	Do. do.	28th May 1880	13th Nat. Inf. -	1 5

Date of First Commission.	Rank, Name, and Corps.	Date of Appointment.	Appointment.	Date on which Tenure of Appointment will expire.	Regiment to which attached before joining Staff.	Length of Service with Corps. Yrs. Mos.
11th June 1841	Col. W. Gordon, Staff Corps.	8th May 1873	Chief Inspector of Musketry.	8th May 1878	Never served with a regiment under present organization.	
26th July 1856	Lt.-Col. E. J. McNair, Bengal Infantry.	17th June 1874	Dy. A. A. General for Musketry.	17th June 1879	24th Nat. Inf. -	1 7
8th Sept. 1859	Capt. C. E. D. Branson, Genl. List, Inf.	7th Sept. 1874	Assistant Garrison Instructor.	7th Sept. 1879	26th „ -	4 1
2nd Oct. 1866	Lieut. H. A. Sawyer, Staff Corps.	15th Sept. 1874	Do. do.	15th Sept. 1879	19th „ -	3 2
2nd March 1855	Major A. J. C. Birch, Staff Corps.	16th Sept. 1870	Brig. Maj., now Off. Asst. Adj. Gen.	16th Sept. 1875	15th Bengal Cav.	8 6
4th Feb. 1854	Major R. S. Robertson, Staff Corps.	8th May 1871	Brigade Major -	8th May 1876	13th „ -	0 4
20th Nov. 1856	Major R. Beadon, late 4th E. L. Cavalry.	25th Oct. 1872	Do. do.	25th Oct. 1877	5th „ -	1 5
9th June 1848	Lt.-Col. H. Maxwell, Staff Corps.	13th Mar. 1873	Do. do.	13th Mar. 1878	Never served with a Native regiment under present organization.	
4th Aug. 1857	Capt. H. G. Waterfield, Staff Corps.	15th July 1873	Do. do.	15th July 1878	13th Nat. Inf. -	1 1
12th Dec. 1856	Capt. A. D. Butter, Staff Corps.	15th July 1873	Do. do.	15th July 1878	44th „ -	1 3
4th Aug. 1857	Capt. R. Morris, 1st En. Light Cavalry.	31st Mar. 1874	Do. do.	31st Mar. 1879	14th Bengal Cav.	1 8
19th Aug. 1853	Major J. C. Minto, Staff Corps.	4th Aug. 1873	Do. do.	4th Aug. 1878	6th Nat. Inf. -	6 6
20th Dec. 1857	Capt. J. S. Irvine, late 2nd E. L. Cav.	9th Mar. 1874	Officiating Brigade Major.	9th Mar. 1879	3rd Bengal Cav.	0 1
20th Dec. 1858	Capt. G. T. Halliday, late 4th E. L. Cav.	25th Sept. 1874	Do. do.	25th Sept. 1879	8th „	0 2
12th Oct. 1859	Capt. S. B. Home, Gen. List, Infantry.	18th Mar. 1872	Station Staff, 1st Class.	These officers vacate should they proceed on furlough, or avail themselves of any but privilege leave.	13th Nat. Inf. -	1 0
4th Sept. 1856	Capt. C. R. Cock, Staff Corps.	7th Oct. 1872	Do. do.		30th „ -	2 5
20th Feb. 1857	Capt. W. E. Chambers, Staff Corps.	11th Aug. 1873	Do. do.		8th and 10th N.I. and 1st and 5th Inf. Hyd. Cont.	1 7
14th Jan. 1854	Major G. F. Graham, Staff Corps.	4th Oct. 1873	Do. do.		38th Nat. Inf. -	0 9
20th Jan. 1861	Capt. W. C. Farwell, Genl. List, Infantry.	11th Oct. 1873	Do. do.		30th „ -	1 0
24th Feb. 1858	Capt. P. Roddy, V.C., unattached.	8th Mar. 1875	Do. 2nd Class		Has never served with a Native regiment under present organization.	
31st Jan. 1860	Capt. F. W. Crohan, Gen. List, Infantry.	1st Nov. 1873	Do. do.		22nd, 7th, and 12th Nat. Inf.	3 9
20th April 1861	Capt. S. A. Swinley, Gen. List, Cavalry.	6th Mar. 1874	Do. do.		3rd Bengal Cav.	11 4
16th Sept. 1857	Capt. W. F. Bartleman, late 39th N. I.	17th Mar. 1874	Do. do.		10th Nat. Inf. -	6 4
20th Sept. 1857	Capt. J. F. F. Cologan, Staff Corps.	1st Dec. 1874	Do. do.		18th „	4 3
29th Aug. 1853	Major H. McD. De W. Douglas, S. C.	26th Sept. 1872	Do. do.		26th „	4 8
20th Feb. 1857	Major H. R. Wintle, late 28th N.I.	6th Dec. 1873	Ditto 3rd Class		18th „	8 0
20th Feb. 1850	Major C. W. Fletcher, Staff Corps.	17th Aug. 1872	Off. 2nd Squ. Officer 1st B. C.	16th Feb. 1876	6th Bengal Cav.	0 10
25th Nov. 1854	Major T. C. Graham, late 4th E. L. Cav.	27th Dec. 1871	Off. 3rd Sqn. Officer 2nd B. C.	21st Oct. 1875	4th „	2 0
14th June 1856	Major E. B. Ward, late 48th N. I.	6th May 1874	Off. Wing Officer 24th N. I.	- - -	3rd Punjab Inf.	5 5
27th June 1849	Major J. T. Harris, Staff Corps.	1st Jan. 1875	Off. Comdt. 33rd N. I.	7th Feb. 1876	45th Nat. Inf. -	1 10
6th March 1857	Capt. H. I. Wheler, Staff Corps.	16th Jan. 1875	Off. 2nd in comd. and W.O. 17th N. I.	- - -	14th „	2 0
8th May 1857	Capt. L Macdonald, Staff Corps.	30th June 1874	Off. Wing Officer, 23rd N. I.	8th June 1875	32nd „	0 3
20th Dec. 1848	Lt.-Col. C. C. Ekins, Staff Corps.	8th Mar. 1875	Off. 2nd in comd. 30th N. I	16th Jan. 1877	30th „	2 6
12th June 1858	Major R. Worsley, late 15th N. I.	9th June 1874	Off. Wing Officer 36th N. I.	- - -	38th „ 36th „	1 8
11th Dec. 1849	Major W. A. Garden, Staff Corps.	2nd Feb. 1874	Off. 2nd in comd. 3rd do.	10th April 1876	3rd Goorkhas - 16th Nat. Inf. -	0 10 0 11

Appendix P.

Cavalry.

Statement showing the Length of Service of British Officers holding Appointments in Regiments of Native Cavalry in the Bengal, Madras, and Bombay Armies, the Punjab Frontier Force, and the Hyderabad Contingent, on 1st April 1875.

Appointment.	Bengal.																				Madras.				Bombay.							Punjab Frontier Force.					Hyderabad Contingent.			
	1st Regiment.	2nd "	3rd "	4th "	5th "	6th "	7th "	8th "	9th "	10th "	11th "	12th "	13th "	14th "	15th "	16th "	17th "	18th "	19th "	1st Regiment.	2nd "	3rd "	4th "	1st Regiment.	2nd "	3rd "	Poona Horse.	1st Sind. "	2nd "	3rd "	1st Regiment.	2nd "	3rd "	4th "	5th "	1st Regiment.	2nd "	3rd "	4th "
	Years.																																						
Commandant - -	33	31	34	31	27	34	35	33	31	28	—	22	21	32	25	20	28	34	30	32	29	36	31	31	35	38	34	29	21	26	21	25	33	30	29	24	25	27	22
2nd in Command -	30	20	27	21	24	21	30	19	25	30	20	20	17	26	23	21	24	19	26	29	34	32	34	—	27	22	25	18	17	16	19	19	20	24	21	20	21	18	27
2nd Squadron Officer -	24	15	20	24	16	16	30	16	18	20	18	17	17	20	25	17	21	17	19	21	27	29	30	21	22	19	20	14	13	14	14	15	18	18	19	—	—	—	—
3rd ditto -	17	18	21	19	19	20	16	14	18	17	15	16	16	—	21	18	16	19	13	19	26	17	20	21	16	14	—	15	9	14	13	18	13	16	18	—	—	—	—
Adjutant - -	19	15	8	16	13	15	15	8	18	16	15	15	14	15	10	15	18	15	15	14	14	11	14	16	15	13	16	10	10	7	11	15	17	15	14	16	13	16	14
1st Squadron Subaltern	10	16	12	16	9	17	16	15	16	15	14	10	8	14	17	14	12	14	12	11	19	18	18	16	13	10	17	7	9	6	9	12	12	15	11	20	6	—	10
2nd ditto	6	15	5	13	10	6	7	6	14	13	7	7	6	8	8	5	8	9	7	22	15	9	17	7	11	8	7	7	6	6	7	9	8	8	11	—	—	—	—

Average Length of Service.

Appointments.	Bengal.	Madras.	Bombay.	Punjab Frontier Force.	Hyderabad Contingent.
Commandant - - -	29	32	30	27	24
2nd in Command - -	23	32	21	20	21
2nd Squadron Officer - -	19	27	17	17	—
3rd ditto - -	17	20	15	15	—
Adjutant - - -	14	13	12	14	15
1st Squadron Subaltern -	13	16	11	12	12
2nd ditto -	8	13	7	8	—

STATEMENT showing the Length of Service of British Officers holding Appointments in the Infantry of the Bengal, Madras, and Bombay Armies, the Punjab Frontier Force, and the Hyderabad Contingent, on the 1st April 1875.

| Appointment. | BENGAL. | | |

Appointment.	BOMBAY.																															PUNJAB.										HYDERABAD.					
	1st Regiment.	2nd "	3rd "	4th "	5th "	6th "	7th "	8th "	9th "	10th "	11th "	12th "	13th "	14th "	15th "	16th "	17th "	18th "	19th "	20th "	21st "	22nd "	23rd "	24th "	25th "	26th "	27th "	28th "	29th "	30th "	1st Sikh. Infy.	2nd "	3rd "	4th "	1st Pun. Infy.	2nd "	3rd "	4th "	5th "	6th "	5th Goorkas.	1st Regiment.	2nd "	3rd "	4th "	5th "	6th "
	Years.																																														
Commandant - -	35	34	33	31	37	33	34	35	33	30	33	35	36	26	36	35	36	32	35	32	27	35	33	34	32	34	30	35	27	32	33	23	32	30	21	23	22	23	21	24	35	28	31	28	30	27	31
2nd in Command -	31	18	31	28	29	29	30	32	27	28	32	25	29	30	30	30	31	27	30	32	29	30	32	30	30	30	27	29	27	24	21	28	22	19	18	19	21	16	21	20	24	19	18	26	23	14	23
Wing Officer - -	27	17	23	22	26	27	23	29	24	27	28	27	26	26	28	26	24	27	24	23	22	26	26	23	27	28	24	25	22	24	17	18	19	16	19	14	17	14	14	17	14	—	—	—	—	—	—
Adjutant - - -	6	14	11	14	8	11	19	14	18	11	14	15	8	16	18	11	—	26	17	18	9	9	13	7	17	14	8	15	16	9	14	12	11	15	17	13	14	13	7	16	14	17	11	9	11	7	18
Quartermaster - -	18	14	17	19	14	15	18	18	17	18	15	14	13	17	11	12	15	15	16	18	15	16	14	20	15	10	7	16	18	19	13	15	14	15	14	9	17	12	14	12	16	—	—	—	—	—	—
1st Wing Subaltern -	18	17	6	16	16	15	14	20	17	8	21	16	16	—	17	16	13	19	17	15	15	16	18	16	14	7	15	14	16	9	8	17	15	18	14	12	9	7	5	9	17	10	10	—	19	19	9
2nd ditto -	5	6	6	18	5	6	6	6	5	5	6	5	5	6	6	8	3	6	4	6	—	8	6	10	6	8	6	5	6	7	5	13	3	7	12	7	6	9	3	—	13	—	—	—	—	—	—

AVERAGE LENGTH OF SERVICE.

Appointments.	Bengal.	Madras.	Bombay.	Punjab Frontier Force.	Hyderabad Contingent.
Commandant - - -	31	35	33	26	29
2nd in Command - -	27	32	29	21	20
Wing Officer - - -	20	27	25	16	—
Adjutant - - -	13	16	13	13	12
Quartermaster - -	12	16	15	14	—
1st Wing Subaltern - -	12	17	15	12	13
2nd ditto - - -	9	13	6	8	—

APPENDIX Q.

DESPATCHES, Correspondence, and Memoranda of Field-Marshal Arthur Duke of Wellington, K.G.

To the Right Honourable Charles Wynn.

MY DEAR WYNN, Stratfield Saye, 7th August 1826.

SINCE I wrote to you yesterday I have read that part of Malcolm's book which relates to the military establishments in the East Indies, and I see that he recommends the amalgamation of the armies, the equalization of their pay, and indeed the formation of the whole into one. He attacks the opinion which I entertain of the security which is derived from the division of the establishments.

My opinion is not altered by the perusal of Malcolm's. He is a very clever fellow, who has considered these subjects more than I have, and knows more of them than I do, and particularly of their present state. But Malcolm, like other men, has prejudices. He thinks the Indian army the first in the world; and of all Indian armies, the army of Fort St. George the finest. He knows the pay of the Bengal army cannot be lowered; that of the others must then be raised to the level of that of the Bengal army.

But Malcolm passes over unnoticed two or three little events not much to the credit of Indian armies; as armies, but which ought to have a great influence in the decision of these questions. First, the mutiny of the European officers of the Bengal army in '95 and '96. Secondly, the mutiny of the sepoys of the army of Fort St. George. And thirdly, the mutiny of the officers of the army of Fort St. George. Some others might be quoted, such as the arrest of Lord Pigot, &c., but I refer only to those of modern times, as bearing more immediately upon the question.

It is true that this country can always rely upon the King's troops in India, that is to say, if the Native army is kept in the hands of the Company; but I declare I believe that if upon any one of those occasions the armies had been amalgamated, and had formed but one, the dependency upon this country would have been lost.

With these events before us, and seeing what armies have done in different countries of Europe, and are capable of attempting, and knowing them as I do, and knowing, moreover, the sort of men whom you must employ to manage them, I cannot but think it fortunate that they are three separate and distinct armies, and not an army consisting of 250,000 men.

But there is one point peculiarly Indian which Malcolm has not put forward in discussing this question, however much it deserves consideration, and notwithstanding that it has not escaped him in considering other parts of this subject, and that is the different classes and nations of people of whom three armies (proposed to be made one army) are composed.

He says very truly in another part of his book that the natives of the countries about Cape Comorin are as unlike those of Hindostan, or of the provinces of Bengal, as a native of Spain or of Italy is to a native of Sweden, or the North of Germany or of Russia; and their languages differ as much as their appearance and manners. The exclusive merit of these officers of the Company's army is their understanding the language, manners, and customs of the natives of India placed under their command. But how is a man belonging to a corps raised and stationed on the coast of Coromandel or Malabar, or in the Ceded Districts or the Deccan, to go and command a battalion raised and stationed in Hindostan? He knows no more of them than (not so much probably as) the commanding officer of one of the King's regiments, who may have done duty in Hindostan. The fact is, that all three armies differ in their discipline, appearance, mode of doing duty, &c., not only because they are separate armies and paid at different rates, but because they are composed of people of different nations. This can never be altered. Let us leave the rest as it is.

Believe me, &c.
(Signed) WELLINGTON.

If you have not read it, pray read the account of the mutiny of the officers of the army of Fort St. George, which was in fact fomented by the Commander-in-Chief General McDowall. Pray read likewise the account of the late conspiracies in the Russian armies, which are not unworthy of attention in considering this question of forming the Indian armies into one.

APPENDIX R.

Native Army.—Invaliding—Pensions.

No. 2837B.

To the Secretary to the Government of India, Military Department.

Adjutant General's Office, Head Quarters, Simla,
SIR, 16th November 1874.

I AM directed by the Right Honourable the Commander-in-Chief to acknowledge the receipt of Military Department No. 722, of 14th October 1874,* forwarding for his Excellency's opinion a representation from the Government of Bombay on the necessity of a revision of the rules regarding the invaliding and pensioning of Native soldiers.

* "Pensions."

2. The time seems to have arrived when the whole subject of the pay, invaliding, and pensioning of the Native army must be revised by the State, as it is forced on military commanders by the increased cost of all the necessaries of life, the rise in the prices of all kinds of labour, and the greater demands made on the soldier than were required of him when his pay of seven rupees a month, with its accompanying batta, pension rules, and scale of clothing, were fixed.

3. That the matter can no longer be safely deferred may be accepted from the fact that it has been urged by the Madras Government, and received consideration, inquiry, and support from that of Bombay.

4. Lord Napier of Magdala entirely coincides with the military authorities in Bombay, as to the necessity of altering the terms of the native soldier's service.

5. The returns of the number of native soldiers pensioned, as distinct from invalids, during the year 1873–74, as shown in the returns which accompanied your letter under acknowledgment, amounted to—

Bengal - - - - -	17
Madras - - - - -	44
Bombay - - - - -	4
Total	65

whereas the invalids during the same period amounted to,—

Bengal - - - - -	3,170
Madras - - - - -	1,656
Bombay - - - - -	1,800
Total	6,626

6. The Commander-in-Chief thinks that these figures, coupled with the alleged increased difficulty in recruiting, and the eagerness of the soldiers to be entered in the invalid rolls after fifteen years service, are proofs that the system is radically defective, and that the present terms of service are unpopular.

7. Considering the precocity of Asiatic races, and their early arrival at mature age, the ruling that no soldier is to get a pension until after 40 years' service is, in his Excellency's opinion, nearly tantamount to decreeing no pension at all; and the procedure of confining pensions to invalids, instead of holding out an inducement for continued and faithful service, is highly injurious to the best interests of the service, and tends to maintain a system of constant and successful malingering.

8. Did the system of invaliding secure regimental efficiency, there might be some inducement to advocate its continuance; but so far from this being the case, it is a frequent source of discord between commanding and medical officers, especially with reference to the terms of "Long service," clause C., para, 2725 of Bengal Army Regulations. At present so much is this the case, that had not his Excellency hoped to obtain a more radical cure for existing defects of system, he would have been induced to solicit Government to sanction the introduction of the military element into the personnel of invaliding medical committees, and to apply the principles advocated by Sir H. Fane, on the like difficulties presenting themselves in invaliding in the British Army in India, which were met in G.O. Queen's Troops, 28th June 1838.*

* Copy enclosed.

9. Lord Napier of Magdala is convinced that a certain amount of extra expenditure is necessary to maintain the Native army, and therefore his Excellency would recommend—

I. That the recruit shall get a free kit after six months' service, Rs. 18 to be allowed to be drawn by the regiment on this account on enlistment, and the remainder on the recruit joining the ranks after passing his drill; instead of recruits having as at present to pay on an average some Rs. 36, to be deducted by instalments from a nominal pay of Rs. 7 a month.

II. That an allowance of Rs. 4 per man a year be made to each regiment; instead of deductions as half-mounting being taken monthly from the sepoy's pay of Rs. 7.

III. That good-conduct pay be allowed at the following rates, instead of according to existing procedure:—

1st, after three years,	Rs.	1 per month.
2nd, after nine years,	Rs.	2 „
3rd, after fifteen years.	Rs.	3 „

IV. That, according to the accompanying scale (A.), subject to the requirements of the service, native officers, non-commissioned officers and men be entitled to proceed to their homes and pass to a reserve.

V. That this ruling be subject to the exigencies of the State, it being competent, in order to control the strength of the reserve, to suspend the application of the order for a stated period, or to limit the operation of it to a given extent in each battalion.

Thus, supposing this project to have been accepted, and the number of men seeking pension to be about equal to the number now invalided and pensioned, there would be on the averages of 1873–74, 3,345 per annum, or in round numbers say 3,500, of which, allowing 1,500 or 3/7ths to meet the invaliding, on account of wounds or disease contracted from service in a notoriously unhealthy district, together with the cost of proposed gratuities (hereafter referred to), there would be available 2,000 men for draft to the reserve among the three Presidencies; which divided roughly amongst the 30 regiments of cavalry and 120 of infantry, and allowing for strength a proportion of 3/5ths to the former for every one of the latter, would give about an average of thirteen pensions available annually in every regiment of infantry, and nine for every regiment of cavalry.

10. That all pensioners between the periods of 20 and 40 years service be liable on all State emergencies to be called out. When so called out they be usually employed in garrison duties, to take the place of troops going on service.

11. That these pensioners be required to present themselves yearly to receive their pensions, and at that period, unless reported physically unfit, they be under arms for one month's annual training, for which period they should receive full pay of their respective ranks.

12. These pensioners to form a general reserve force, under the immediate command of experienced officers located at reserve depôts, which perhaps (except in the cases of Goorkha and other hill soldiers) might conveniently be formed at the head-quarter stations of army commands.

13. A British field officer, on the half-staff command pay of a regiment, to be detailed to the command of each depôt, to be assisted by a second officer, should the depôt exceed a strength of 800 men, with an extra field officer for every such 800 additional men.

14. With regard to invalid pensions for wounds sustained in action, existing procedure might be maintained. Cases of invalliding from the effects of disease contracted by service, or special cases stated by medical officers to be due to climate, might be met by declaring the climate of Assam as one in which if any troops foreign to it should be invalided, they should be entitled to existing invalid pensions; and a like ruling to be held good in the case of Punjab troops serving in Bengal proper, or men from the south of Delhi at Peshawur or the Deyrajat.

15. In cases, however, of men breaking down before 20 years' service from ordinary causes, the system of gratuities, instead of pension, might in his Excellency's opinion advantageously be applied, on the following scale:—

Under 5 years and over	3	-	-	-	3 months' pay.
From 5 years to	10	-	-	-	6 „
From 10 „ to	15	-	-	-	9 „
From 15 „ to	20	-	-	-	1 year's pay.

16. Lord Napier of Magdala would take this opportunity, while submitting what appears to his Excellency radical requirements for the well being of the Native army, to urge upon Government the advisability of sanctioning colours and bands to all corps not already provided with them.

The feelings of the Native soldiery associate with colours a veneration very much akin to that which leads soldiers of western nations to cherish insignia, around which they have rallied in hours of danger and followed on the tide of victory.

It is well, his Excellency thinks, to nourish such feelings, and add every accessory incentive to increase *esprit de corps*. On the occasion of communicating to the 45th Native Infantry Her Majesty's most gracious permission to wear on their colours "Behar" and "Defence of Arrah," his Excellency received a most earnest appeal from the Native officers and men for the grant of colours, without which, they point out, "there is nothing to show of these honours won, nor to "tell of Her Majesty's gracious approval of the regiment's distinguished services."

17. The Commander-in-Chief is aware of the objections, on the score of expenditure, which may be raised to this project. I am, however, to point out that the immediate saving on the invaliding account would probably go a long way to meet the contemplated expenditure on the creation of so necessary a component as a reserve to the Indian Army.

18. Lord Napier of Magdala has considered most carefully the possibility of making reductions in the Native army, to meet any possible extra expenditure, but is convinced that the strength of the Native army is at its minimum, with regard to the duties required of it in times of peace.

19. In the case of sudden and unforeseen war, there is no reserve, and the inadequacy of the existing strength was illustrated on the despatch of the comparatively small force, detached from India, for Abyssinia, which, in the opinion of the Governor-General in Council, necessitated an immediate increase of six men to every troop of Native cavalry, and 10 to every company of Native infantry even in this Presidency.

Again, at Umbeyla, where we had at command, and immediately available, the mass of the force disposed especially to meet such a demand, the check to our arms, and the sudden call for large reinforcements, caused so great a shock as to render necessary the movement of troops* from the very further extremities of the empire.

* From Bombay Presidency, Bengal, and Oude.

20. The Commander-in-Chief considers it most desirable that the sick in Native infantry hospitals should not be left, in all the varieties of Indian climate, to depend entirely on their own resources as to bedding, and submits that an allowance of blankets equal to 5 per cent. of strength be allowed to meet special cases of sickness.

21. Lord Napier of Magdala, in conclusion, would reiterate his opinion, that experience has shown that the existing strength is the very minimum for the requirements of this country; that the creation of a reserve is a necessity; and that the improvement of the condition and prospects of the Native soldier is of vital importance to the efficient maintenance of the Native armies.

I have, &c.
P. S. Lumsden, Colonel,
Offg. Adjutant General in India.

General Orders by Sir H. Fane, dated 8th June 1838.

The inefficient state of some of Her Majesty's regiments in Bengal, as compared with their numbers on paper, owing to the retention in the ranks of ineffective men, caused by the scruples of invaliding medical committees, has occupied the attention of the Commander-in-Chief.

His Excellency has communicated with the General Commanding-in-Chief Her Majesty's army, on the subject, and is now pleased to direct that the following instructions shall supersede, in the East Indies, all those of anterior date which may be at variance with them:—

1. The regimental authorities (commanding officer and senior medical officer) are authorized to present to the consideration of invaliding committees the cases of all soldiers deemed by them no longer equal to their duties in India, with the view of ascertaining their actual state as to efficiency.

2. Those men who appear permanently unequal to the general duties of soldiers, and are unequal to more than barrack or other minor duties, are not to be retained in India; nor are soldiers who, though not having any palpable medical defect, still may be deemed totally unequal to, and not likely to be able to resume their duties.

3. As it not unfrequently happens that soldiers are brought forward for discharge for reasons not strictly medical, on which the invaliding medical officers do not agree with the regimental authorities, or consider that they have not sufficient grounds on which to decide the case in the manner the regimental authorities recommend, the following practice is to be followed in all such cases.

4. A board is to be assembled (consisting of three field officers) by order of the general officer commanding the division in which the regiment was stationed, and all the cases in which the invaliding committee may not have agreed with the regimental authorities, are to be submitted to their consideration for a final decision.

5. In each case a roll of the soldier, containing a certificate (see annexed form), signed by the commanding officer and the medical officer of the soldier's regiment, is to be laid before the board; in which certificate the nature of the disability under which the soldier may labour must be fully set forth, and it must be stated in what manner the disability may have arisen.

6. The board must use the greatest caution and circumspection, so that the decision they may give shall be borne out and confirmed on a fair consideration of all the circumstances of the case, and bear the closest subsequent scrutiny.

7. The regimental authorities must be most careful to guard against malingerers, and never bring forward a man whose case bears the smallest suspicion of having that tendency; and they and the committees to be constituted under this order must carefully keep in mind that men sent home who are not discharged after arrival in England become a burthen on their depôts, and there remain to the exclusion of recruits.

8. The certificates ordered in the fifth paragraph are to be forwarded by each regiment to the head-quarters of their respective Presidencies with the other invalid rolls, for the final orders of the Commander-in-Chief in each.

Roll of *A.B.* of Her Majesty's Regiment of , who is deemed a fit subject to be brought before the Special Invaliding Committee of Field Officers, ordered to be assembled at on the day of .

Name and No. of the soldiers.	Troop or company.	Rank.	Present Age. Years.	Present Age. Months.	Service in India. Years.	Service in India. Months.	Character.	Disease, or reason for proposing his discharge.	Brief summary of previous medical treatment.	The decision of the Committee, and grounds of the opinion formed.

(Signed) *G. H.* Comdg. the Regiment. (Signed) *J. K.* Surgeon—Regiment. (Signed) *A. B.*, President. „ *C. D.* } Members. „ *E. F.* }

A.

Scale of Proposed Pensions.

No estimate of the difference of cost between Invaliding and Pensioning can be given, as the Pension List is with Government.

—	After 20 years' service half full pension.			After 25 years' service 2-3rd full pension.			After 30 years' service 3-4th full pension.			After 35 years' service 6-7th full pension.			After 40 years' service full pension.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Subadars 1st class - -	25	0	0	33	5	4	37	8	0	42	13	8	50	0	0
„ 2nd „ - -	22	8	0	30	0	0	33	12	0	38	10	6	45	0	0
„ 3rd „ - -	20	0	0	26	10	8	30	0	0	34	4	6	40	0	0
Jemadars 1st class - -	15	0	0	20	0	0	22	8	0	25	11	5	30	0	0
„ 2nd „ - -	10	0	0	13	5	4	15	0	0	17	2	3	20	0	0
Havildars - - -	7	0	0	9	5	4	10	8	0	12	0	0	14	0	0
Naicks - - -	6	0	0	8	0	0	9	0	0	10	4	6	12	0	0
Sepoys, drummers and buglers	3	8	0	4	10	8	5	4	0	6	0	0	7	0	0

P.S.—Probably but few men would go in the grade of Naick or Sepoy.

B.

Approximate Cost of giving each Recruit a Free Kit.

Number of recruits engaged during the years 1871, 1872, 1873 - -	3)11,228	
	3742⅔	yearly average.
	36	
	22452	
	11226	
Rs. -	134,712	annual cost of proposed measure.

C.

Approximate Cost of doing away with Half-mounting.

Native non-commissioned officers, rank, and file on the 1st October 1874 -	34,045	
	4	
Rs. -	136,180	= cost.

D.

Approximate Statement of probable Increase to the Charge for Good-conduct Pay in Native Infantry, according to the Proposal under consideration. Average taken from Four Regiments.

Corps.	At present.			Proposed (approximate.)			Remarks.
	Number.	Per Mensem.	Per Year.	Number.	Per Mensem.	Per Year.	
		Rs.	Rs		Rs.	Rs.	
11th Native Infantry	204 @ 1 Rs.	204	2,448	267 @ 1 Rs.	267	3,204	
				75 @ 2 „	150	1,800	
	200 @ 2 „	400	4,800	117 @ 3 „	351	4,212	
Total - -	404	604	7,248	459	763	9,216	
21st Native Infantry	92 @ 1 Rs.	92	1,104	123 @ 1 Rs.	123	1,476	
				165 @ 2 „	330	3,960	
	220 @ 2 „	440	5,280	36 @ 3 „	108	1,296	
Total - -	312	532	6,384	324	561	6,732	
31st Native Infantry	132 @ 1 Rs.	132	1,584	273 @ 1 Rs.	273	3,276	
				95 @ 2 „	190	2,210	
	140 @ 2 „	280	3,360	27 @ 3 „	81	972	
Total - -	272	412	4,944	395	544	6,528	Rs. 7,392 proposed. „ 5,904 at present
41st Native Infantry	100 @ 1 Rs.	100	1,200	267 @ 1 Rs.	267	3,204	„ 1,488 per Infantry regiment per annum. 50
				135 @ 2 „	270	3,240	
	160 @ 2 „	320	3,840	18 @ 3 „	54	648	
Total - -	260	420	5,040	420	591	7,092	
Grand Total - -	1,248	1,968	26,616	1,598	2,464	29,568	Rs. 74,400, or 7,440*l.* per annum.
Average -	312	492	5,904	399	616	7,392	

Native Army.—Invaliding—Pension.

No. 1482B.

To the Secretary to the Government of India, Military Department.

Adjutant General's Office, Army Head Quarters, Simla, 30th June 1875.

Sir,

In continuation of my letter No. 2837B, of the 16th November 1874, I am directed by the Right Honourable the Commander-in-Chief to submit, for the information of Government, the accompanying extract* from "Williams' Historical Account of the Rise and Progress of the Bengal Native Infantry," a work written in 1796 and published in 1817, with the approval of the Board of Control and Court of Directors.

* Appendix A.

2. This extract, coupled with the annexed tables, appears, to Lord Napier of Magdala, to support the opinion expressed in para. 2 of my letter above quoted, as the author, while noting

that several years prior to 1796 the pay of the sepoy was, as now, Rs. 7 per mensem, further remarks that with this sum the men were well satisfied, and though called on to defray the expense of hutting themselves, were able to make considerable savings out of their pay.

3. It is the case that hutting money is now allowed to Native troops, but this grant in no way increases their pay, as it but compensates for the cost of wood, which in earlier days could be brought in from adjacent jungles; and for the improvied style of hut, which modern sanitary considerations have rendered incumbent, and meets the increased expenditure caused by the prohibition against the old system of trenches, &c. at the front and rear of the huts, from which the walls used to be constructed.

4. It will be observed that the sum now allowed for marching batta, to those regiments which still continue to draw that allowance, is exactly what it was 80 or 90 years, although the weight to be carried and the rates for carriage have, under the orders issued from time to time by Government, considerably increased during that period.

5. After the lapse of time it would be difficult if not impossible to obtain reliable comparative statements of the cost of living and clothing in 1796 and 1875, especially as the former depends to a great extent on the station at which a regiment may be quartered and the nature of the harvest. Statement however are submitted,* from corps with records, which show that although the cost of living has considerably increased even within the last 20 years, the increase, amounting to some Rs. 1–8–7 monthly, is enhanced by the further addition of about Rs. 6–9–11 annually, the difference of the price of regimental necessaries. The aggregate increase in these two items, Rs. 2–1–1 or approximately of one-third, may be accepted as representing the reduced value of the pay, Rs. 7 per mensem, received by the sepoy of 1875.

* Appendix B.

6. Of these statements that submitted by the officer commanding the 13th Native Infantry has a peculiar value, as that regiment was in 1848 stationed, as it now is, at Benares, and the present officiating commandant was also quartered there at that time, and has therefore been able to report with more certainty than must usually be the case.

7. From this statement it appears that the cost of living at Benares for a native soldier in 1848, was Rs. 2–4 per mensem, while in 1875, exactly the same quantity and quality of food cost Rs. 5–8–0; and that the regimental necessaries which, in 1848, were purchaseable for 7–0–0, cost in 1875 Rs. 15–3–0. In the statements submitted is not included the cost of the first kit of a recruit, which would much enhance the total deductions from a soldier's pay, against which the only compensating actual increase since 1796 has been the good-conduct pay.

8. In the Appendix* will also be found returns showing the prices of the staple articles of the food of the Native soldier in the various large military stations in this Presidency, in 1860, '65, '70, '75, and also of the average number of recruits which have been with each regiment during the past five years. The former of these statements shows the fluctuating vatue of food according to the nature of successive harvests, and proves that in times of dearness the prices of provisions would be prohibitory to sepoys, were it not for the system of compensation for dearness of provisions when prices rise above a fixed standard. The return of recruits is submitted, with a view of showing how large a deduction it is necessary to make on this account from the effective strength of the army.

*Appendices C, D.

9. An abstract* of the replies from officers commanding regiments on the subject of the difficulty of obtaining recruits is submitted for the consideration of Government, as a large number of these answers support the view already expressed, that were such difficulties exist they are attributable in a measure to the growing unpopularity of the military service, the result of the decreased value of a rate of pay which, fixed many years ago, was then suitable for the necessities and requirements of a soldier, but now leaves him, when all deductions are paid, but the means of bare subsistence. A fact which appears to have a special bearing on this question is, that out of an army of 37,036 men under the orders of the Commander-in-Chief, 17,465 are under six years' service, showing that a very large number of men do not find it worth while to remain long enough to entitle them to the first rate of good-conduct pay.

* Appendix E.

Paras. 6 and 9 of Adjutant-General's letter 2837B, of 16th November 1874.

Appendix F.

I have, &c.
Adjutant-General in India.

(Appendix A.)

Extract from Captain Williams' History of the Bengal Native Infantry, from 1757 to 1796, pages 261 and 262.

The pay of the Native troops has not undergone any alteration for a long course of years. The private sepoy receives seven rupees per month in all stationary situations, and eight rupees and a half when marching, or in the field; exclusive of half a rupee per month allotted to the off-reckoning fund, for which they receive one coat, and nothing more, annually. From that allowance, with which generally speaking they are very well satisfied, they not only provide themselves with everything they require for food and raiment in all situations, but they also erect cantonments for themselves in all stationary situations, at their own expense; and moreover there are but few amongst them who do not make considerable savings from their pay

in the course of the year, which they carry or remit to their families, for their general maintenance and comfort. Indeed such is the beneficence of their character in this respect, that when they proceed on foreign service an extensive official arrangement is adopted, on the part of Government, for remitting to the families and connexions of the Native soldiery a handsome portion of their pay during their absence.

(APPENDIX B.)

RETURNS showing the comparative Cost of Living, and the Price paid for Articles of Regimental Necessaries by a Sepoy, between the years 1848 and 1875.

2nd Regiment Native Light Infantry.

1848.	Amount. Rs. A. P.	1875.	Amount. Rs. A. P.
To 30 srs. of attah at 24 srs. per rupee	1 4 0	To 30 srs. of attah at 11 srs. 15 chks. per rupee	2 8 0
3¾ srs. dhall at 26 srs. per rupee	0 2 3½	3 srs. of dhall at 11 srs. 10¾ chks. per rupee	0 4 1½
1 sr. and 15 chks. ghee at 2⅞ srs. per rupee	0 10 9¼	1 sr. 15 chks. ghee at 1 sr. 15 chks. per rupee	1 0 0
Sugar, 7½ srs. at 7½ srs. per rupee and salt 15 chks. at 10 srs. per rupee	1 1 6	Sugar, 7½ srs. at 3 srs. 4½ chks. per rupee, and salt 15 chks. at 7 srs. 12 chks. per rupee	2 6 5
Firewood, 1½ md. at 5 mds. per rupee	0 4 9½	1½ maunds firewood at 2 mds. 20 srs. per rupee	0 9 6
Tobacco, 1 sr. 14 chks. at 5 srs. per rupee	0 6 0	1 sr. 14 chks tobacco at 5 srs. per rupee	0 6 0
Total cost of living - Rs.	3 13 4¼	Total cost of living - Rs.	7 2 0½
Price of Regimental Necessaries.		*Price of Regimental Necessaries.*	
To 2 plain turbans at 0 11 0 each	1 6 0	To 2 plain turbans at 1 0 0 each	2 0 0
2 koortas „ 0 7 0 „	0 14 0	2 koortas „ 0 10 0 „	1 4 0
2 anggas „ 0 12 0 „	1 8 0	2 mirzaies „ 0 12 0 „	1 8 0
2 pyjamas „ 0 14 0 „	1 12 0	2 pyjamas „ 1 4 0 „	2 8 0
2 dhotees „ 1 0 0 „	2 0 0	2 dhotees „ 1 8 0 „	3 0 0
1 durrie „ 1 4 0 „	1 4 0	2 sheets „ 1 4 0 „	2 8 0
1 rizzaie „ 1 8 0 „	1 8 0	1 durrie „ 2 8 0 „	2 8 0
		1 rizzaie „ 3 6 0 „	3 6 0
Total cost of regimental necessaries	10 4 0	Total cost of regimental necessaries	18 10 0

5th Native Light Infantry.

1848.	Amount. Rs. A. P.	1875.	Amount. Rs. A. P.
To 30 srs. of attah at 18 srs. per rupee	1 10 8	To 30 srs. of attah at 16 22/64 srs. per rupee	1 13 3
3¾ srs. dhall at 17 srs. per rupee	0 3 7	3¾ srs. of dhall at 12 1/64 srs. per rupee	0 8 8
1 sr. and 14 chks. ghee at 1¾ per rupee	1 1 2	1 sr. 14 chs. ghee at 1 1 3/16 srs. per rupee	1 0 10
Sugar, or goor, and salt	0 4 3	Sugar, or goor, and salt	0 5 3
Firewood	0 8 0	Firewood	0 9 8
Tobacco	0 4 0	Tobacco	0 4 0
Total cost of living - Rs.	3 15 8	Total cost of living - Rs.	4 9 8
Price of Regimental Necessaries.		*Price of Regimental Necessaries.*	
To 2 plain turbans	2 4 0	To plain turbans	2 10 0
koortas / anggas } 2 of one or the other	2 0 0	koortas / mirzaies } 2 of one or the other	2 0 0
pyjamas / dhotees } 2 of one or the other	2 4 0	pyjamas / dhotees } 2 of one or the other	2 6 0
1 durree	2 0 0	sheets	2 0 0
1 rizzaie	2 12 0	durree	1 14 6
		rizzaie	3 8 0
Total cost of regimental necessaries	11 4 0	Total cost of regimental necessaries	14 6 6

6th Bengal Light Infantry.

1848.	Amount.	1875.	Amount.
	Rs. A. P.		Rs. A. P.
To 30 srs. of attah at 32 srs. per rupee	0 15 0	To 30 srs. of attah at 15½ srs. per rupee	1 14 11
3¾ srs. dhall at 60 srs. per rupee	0 1 0	3 srs. of dhall at 18 srs. 3 chs. per rupee	0 2 7
1 sr. and 15 chks. ghee at 3 srs. per rupee	0 10 4	1 sr. 15 chks. ghee at 1 sr. 10¼ chks. per rupee	1 2 10
Sugar, or goor, and salt	0 2 0	Sugar, or goor, and salt	0 1 0
Firewood (2 srs. a day at 5 mds. per rupee)	0 4 10	Firewood, 2 srs. a day at 3¼ mds.	0 7 6
Tobacco	0 1 0	Tobacco	0 3 0
Total cost of living - Rs.	2 2 0	Total cost of living - Rs.	3 15 10
Price of Regimental Necessaries.		*Price of Regimental Necessaries.*	
To 2 plain turbans (for wear off duty with Native suit)	1 0 0	To 2 plain turbans (for wear off duty with Native suit)	1 4 0
2 koortas (uniform-jackets)	1 6 0	2 koortas (uniform, Zouave pattern tunic)	3 15 0
2 anggas (for wear off duty with Native suit)	1 0 0	2 mirzaies (for wearing off duty with Native suit)	1 0 0
2 pyjamas (uniform-trousers)	2 0 0	2 pyjamas (uniform, knicker-bockers)	4 4 0
2 dhotees (for wear off duty with Native suit and with uniform)	1 12 0	2 dhoties (for wear off duty with Native suit and with uniform)	1 13 0
1 durree	1 0 0	2 sheets	1 13 6
1 rizzaie	1 12 0	1 durree	2 1 0
		1 rizzaie	2 4 0
Total cost of regimental necessaries	9 14 0	Total cost of regimental necessaries	18 6 6

13th Regiment Native Infantry.

1848.	Amount.	1875.	Amount.
	Rs. A. P.		Rs. A. P.
To 30 srs. of attah at 30 srs. per rupee	1 0 0	To 30 srs. of attah at 12 srs. per rupee	2 8 0
3¾ srs. dhall at 20 srs. per rupee	0 3 0	3 srs. of dhall at 15 srs. per rupee	0 5 0
1 sr. and 15 chks. ghee at 4¼ srs. per rupee	0 7 0	1 sr. 15 chks. ghee at 1¾ srs. per rupee	1 2 0
Sugar, or goor, and salt	0 4 0	Sugar, or goor, and salt	0 9 0
Firewood	0 4 0	Firewood	0 10 0
Tobacco	0 2 0	Tobacco	0 6 0
Total cost of living - Rs.	2 4 0	Total cost of living - Rs.	5 8 0
Price of Regimental Necessaries.		*Price of Regimental Necessaries.*	
To 2 plain turbans	0 8 0	To 2 plain turbans	1 8 0
2 koortas	0 12 0	2 koortas	1 6 0
2 anggas	0 0 0	2 mirzaies	1 6 0
2 pyjamas	1 12 0	2 pyjamas	1 12 0
2 dhotees	0 4 0	2 dhotees	1 12 0
1 durree	1 0 0	Sheets	1 11 0
1 rizzaie	1 12 0	Durree	2 0 0
		Rizzaie	3 12 0
Total cost of regimental necessaries	7 0 0	Total cost of regimental necessaries	15 3 0

20th Regiment Native Infantry.

1860.	Amount. RS.	A.	P.	1875.	Amount. RS.	A.	P.
To srs. of attah at srs. per rupee	*			To 30 srs. of attah at $18\frac{3}{16}$ srs. per rupee - -	1	10	5
srs. dhall at srs. per rupee -				$3\frac{3}{4}$ srs. of dhall at $12\frac{5}{16}$ srs. per rupee - - -	0	4	11
sr. and chks. ghee at srs. per rupee - - -				1 sr. 14 chks. ghee at $1\frac{11\frac{1}{2}}{16}$ srs. per rupee - -	1	1	3
Sugar, or goor, and salt - -				Sugar, or goor, and salt -	0	0	2
Firewood - - -				Firewood (without langrees) -	0	7	6
Tobacco - - -				Tobacco - - -	0	7	6
Total cost of living - Rs.				Total cost of living - Rs.	3	15	9
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To 2 plain turbans - -	3	0	0	To 2 plain turbans - -	3	0	0
2 koortas - - -	1	2	0	2 koortas - - -	1	4	0
anggas - - -	0	0	0	mirzaies - - -	0	0	0
2 pyjamas - - -	1	6	0	2 pyjamas - - -	1	8	0
1 dhotee - - -	0	0	0	dhotees - - -	0	0	0
1 durree - - -	2	0	0	2 sheets - - -	2	0	0
1 rizzaie - - -	3	6	0	1 durree - - -	3	0	0
				1 rizzaie - - -	3	8	0
Total cost of regimental necessaries	10	14	0	Total cost of regimental necessaries	14	4	0

* No record—regiment in China.

26th Regiment Native Infantry.

1860.	Amount. RS.	A.	P.	1875.	Amount. RS.	A.	P.
To 31 srs. of attah at $13\frac{5}{16}$ srs. per rupee - - -	2	5	3	To 31 srs. of attah at $18\frac{3}{4}$ srs. per rupee - -	1	11	6
$3\frac{7}{8}$ srs. dhall at $13\frac{7}{16}$ srs. per rupee	0	4	7	$3\frac{7}{8}$ srs. of dhall $15\frac{17}{32}$ srs. per rupee - - -	0	4	0
$1\frac{5}{16}$ srs. ghee at $2\frac{7}{32}$ srs. per rupee	0	14	1	1 sr. 15 chks. ghee at $1\frac{9}{16}$ srs. per rupee - - -	1	3	11
Sugar, or goor, and salt - -	0	8	7	Sugar, or goor, and salt -	0	7	8
Firewood - - -	0	6	2	Firewood - - -	0	9	7
Tobacco - - -	0	7	9	Tobacco - - -	0	3	10
Total cost of living - Rs.	4	14	5	Total cost of living - Rs.	4	8	6
Price of Regimental Necessaries.				*Price of Regimental Necessaries.*			
To plain turbans - -	3	1	11	To plain turbans - -	3	2	0
koortas - - -				koortos - - -	0	6	6
anggas - - -				mirzaies - - -	0	0	0
pyjamas - - -				pyjamas - - -	0	4	9
dhotees - - -				dhotees - - -	0	0	0
durree - - -				sheets - - -	0	0	0
rizzaie - - -				duree - - -	1	12	0
				rizzaies - - -	3	13	0
Total cost of regimental necessaries	22	4	5	Total cost of regimental necessaries	30	6	3

ABSTRACT.

Regiment.	Cost of living.		Price of Regtl. Necessaries.	
	1848.	1875.	1848.	1875.
2nd Regiment Native Infantry - -	3 13 4	7 2 1	10 4 0	18 10 0
5th „ „ - -	3 15 8	4 9 8	11 4 0	14 6 6
6th „ „ - -	2 2 2	3 15 10	9 14 0	18 6 6
13th „ „ - -	2 4 0	5 8 0	7 0 0	15 3 0
	1860.	1875.	1860.	1875.
20th „ „ - -	No record	3 15 9	10 14 0	14 4 0
26th „ „ - -	4 14 5	4 8 6	22 4 5	30 6 3
Average - -	3 6 8	4 15 3	11 14 9	18 8 8

Difference, monthly cost of living - - - - 1 8 7
Difference annual price of regimental necessaries - - 6 9 11

(APPENDIX C.)

NERRICK RETURNS for Bengal, North-West Provinces, Oude, and Punjab, for 1860–65, 1870–75.
Simla, 3rd May 1875.

Dinapore, Gorakpur, and Benares.

Year.	Corps.	Attah.		Rice.		Dall.		Ghee.		Salt.		
		Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	Sr.	Ch.	
1860 -	35th N.I. - -	18	9	18	1	21	12	1	15	6	13	Dinapore.
1865 -	26th „ - -	10	14	8	13	8	9	1	12	6	0	Gorakpur.
1870 -	5th „ - -	9	0	10	2	10	5	1	4	7	1	Benares.
1875 -	2nd „ - -	12	1	12	0	11	6	1	15	7	12	Dinapore.
	Totals - 4)	50	8	49	0	52	0	6	14	27	10	
	Average - -	12	10	12	4	13	0	1	11	6	14	

Barrackpore and Alipore.

1860 -	18th N.I. - -	8	0	17	8	10	0	1	12	7	0	Alipore.
1865 -	6th „ - -	13	9	12	6	13	5	1	6	7	11	Barrackpore.
1870 -	13th „ - -	8	12	7	10	10	11	1	2	7	8	Barrackpore.
1875 -	39th „ - -	9	1	11	5	10	0	1	4	8	0	Barrackpore.
	Totals - 4)	39	6	48	13	44	0	5	8	30	3	
	Average - -	9	11	12	3	11	0	1	6	7	5	
	Average for Bengal - -	11	4	12	3	12	0	1	8	7	1	

Cawnpore and Agra.

1860 -	17th B. Cavy. -	14	0	7	0	14	4	2	0	7	0	Cawnpore.
1865 -	37th N. I. - -	11	6	8	0	12	10	1	12	6	1	Agra.
1870 -	10th „ - -	13	3	10	0	15	8	1	7	7	3	Cawnpore.
1875 -	35th „ - -	17	6	15	0	19	11	2	1	7	0	Cawnpore.
	Totals - 4)	55	15	40	0	61	13	7	3	27	4	
	Average - -	14	0	10	0	15	7	1	13	6	13	

Meerut.

Year.	Corps.	Attah. Sr.	Attah. Ch.	Rice. Sr.	Rice. Ch.	Dall. Sr.	Dall. Ch.	Ghee. Sr.	Ghee. Ch.	Salt. Sr.	Salt. Ch.	
1865	12th B. Cavy.	8	7	5	12	10	0	1	8	7	6	
1870	8th „	12	7	18	0	16	2	1	5	8	2	
1875	5th N. I.	16	7	10	10	12	0	1	13	7	11	
	Totals - 3)	37	5	25	6	38	2	4	10	23	3	
	Average	12	7	8	7	12	11	1	8	7	11	
	Average for N. W. P.	13	5	9	5	14	4	1	11	7	3	

Lucknow.

1860	16th B. Cavy.	19	13	13	12	18	3	1	12	6	3	
1865	7th „	13	6	9	13	12	11	1	13	5	5	
1870	9th N. I.	13	9	7	10	5	15	1	6	5	11	
1875	6th „	15	1	15	9	18	4	1	10	5	12	
	Totals - 4)	61	13	46	12	54	13	6	9	22	15	
	Average	15	7	11	11	13	11	1	10	5	12	

Sitapur and Fyzabad.

1860	6th B. Cavy.	17	15	7	12	13	12	1	15	5	14	Sitapur.
1865	8th N. I.	14	11	7	9	12	14	2	0	6	9	Sitapur.
1870	17th „	11	12	6	8	13	0	2	1	5	8	Sitapur.
1875	8th „	16	6	12	0	14	10	2	1	5	5	Fyzabad.
	Totals - 4)	60	12	33	13	54	4	8	1	13	4	
	Average	15	3	8	7	13	9	1	0	5	13	
	Average for Oude	15	5	10	1	13	10	1	13	5	12	

Meean Meer and Ferozepore.

1860	4th Goorkhas	15	1	10	0	12	0	2	2	7	11	Ferozepore.
1865	21st N. I.	15	11	7	2	17	1	1	12	9	3	Meean Meer.
1870	35th „	10	14	9	5	12	0	1	3	8	14	Meean Meer.
1875	25th „	19	4	8	0	20	0	1	10	10	0	Meean Meer.
	Totals - 4)	60	14	34	7	61	1	6	11	35	12	
	Average	15	3	8	10	15	4	1	11	9	0	

Rawal Pindi.

1860	1st N. I.	13	0	11	0	12	4	11	10	8	0
1865	2nd Goorkhas	20	8	12	5	18	8	2	3	10	11
1870	24th N. I.	15	0	10	0	9	8	1	10	10	14
1875	14th „	25	5	7	0	10	11	2	5	10	11
	Totals - 4)	73	13	40	5	50	15	7	12	40	4
	Average	18	7	10	1	12	12	1	15	10	1
	Average for Punjab	16	13	9	5	14	0	1	13	9	8

Abstract.

Bengal	11	4	12	3	12	0	1	8	7	1
N. W. Provinces	13	5	9	5	14	4	1	11	7	3
Oude	15	5	10	1	13	10	1	13	5	12
Punjab	16	13	9	5	14	0	1	13	9	8

(APPENDIX D.)

RETURN showing the average number of RECRUITS present on the 1st of each month during the past Five years, in Regiments of Native Cavalry and Infantry.

Regiments.	No. of Recruits.	Regiments.	No. of Recruits.
1st Bengal Cavalry - -	20	18th Native Infantry - -	70
2nd " " - - -	27	19th " " - - -	73
3rd " " - - -	39	20th " " - - -	98
4th " " - - -	22	21st " " - - -	94
5th " " - - -	41	22nd " " - - -	100
6th " " - - -	14	23rd " " - - -	46
7th " " - - -	19	24th " " - - -	75
8th " " - - -	26	25th " " - - -	75
9th " " - - -	36	26th " " - - -	58
10th " " - - -	31	27th " " - - -	57
11th " " - - -	28	28th " " - - -	75
12th " " - - -	46	29th " " - - -	59
13th " " - - -	20	30th " " - - -	58
14th " " - - -	17	31st " " - - -	68
15th " " - - -	9	32nd " " - - -	43
16th " " - - -	33	33rd " " - - -	33
17th " " - - -	33	34th " " - - -	36
18th " " - - -	26	35th " " - - -	74
19th " " - - -	38	36th " " - - -	64
1st Native Infantry - -	64	37th " " - - -	51
2nd " " - - -	46	38th " " - - -	52
3rd " " - - -	43	39th " " - - -	65
4th " " - - -	86	40th " " - - -	45
5th " " - - -	33	41st " " - - -	44
6th " " - - -	74	42nd " " - - -	89
7th " " - - -	19	43rd " " - - -	64
8th " " - - -	66	44th " " - - -	67
9th " " - - -	50	45th " " - - -	64
10th " " - - -	62	1st Goorkhas - - -	73
11th " " - - -	53	2nd " - - -	50
12th " " - - -	63	3rd " - - -	28
13th " " - - -	39	4th " - - -	28
14th " " - - -	40	Sappers and Miners - - -	123
15th " " - - -	77		
16th " " - - -	34	Total - -	3,539
17th " " - - -	66		

Average strength of Native army	- -	44,290
Per-centage of Recruits	- - -	8

(APPENDIX E.)

ABSTRACT of replies from officers commanding regiments of Native cavalry and infantry as to the difficulty or otherwise of obtaining good recruits.

Regiments.	Abstract of Replies.
1st Bengal Cavalry -	No difficulty in procuring recruits of good physique, but they do not equal the old soldiers.
2nd ditto -	No difficulty whatever in the 2nd Bengal Cavalry.
3rd ditto -	No difficulty whatever.
4th ditto -	Recruits of good physique do not come forward in such numbers as was formerly the case in Bengal Cavalry Regiments. I attribute this to several causes. In the first place, pay does not go so far as it used to, and the would-be recruit invests his spare cash in land, in preference to the service. Land and its produce is increasing yearly in value while the relative value of pay is decreasing. Able-bodied men are therefore retained to till it, while those only who are disinclined or unable through physical causes to do the hard work that cultivators go through, constitute the recruits of the service.
5th ditto -	I have not found any difficulty in obtaining good recruits of the proper standard.
6th ditto -	We have to depend to a great extent on family recruiting, for, as I believe, owing to the much lower value of the pay now to what it was ten years ago, the service is not so popular among the classes than in former years flocked for enlistment in the Cavalry. The Pathan recruits are not equal in appearance or physique to the men enlisted when the troop was raised in Peshawar in '63–64. In this regiment the Sikh recruits are also not up to their former standard. The fact of there being no Sikh commissioned officer is, no doubt, a principal cause, but another cause and a very great one in the eyes of a thrifty race, as the Sikhs are, is the yearly increasing expense of the service and of living.

Regiments.	Abstract of Replies.
7th Bengal Cavalry -	Suitable recruits with money to invest in the purchase of "Assamees" have been difficult to obtain during late years, but by assisting them with money I have had no difficulty in procuring men in sufficient numbers and of good physique, although the youngsters who now enlist are certainly not of the same born-soldier class that one formerly got, but men necessarily do not now train their sons to the profession of arms as they did.
8th ditto -	I have experienced no difficulty in securing recruits of good physique and of respectability of character, since I have been in command of the regiment.
9th ditto -	No very remarkably difficulty, but still it is observable that there are not the same number of "hangers on" (Oomedwars) waiting for service, as formerly.
10th ditto -	In the Jat troop there is difficulty. There is no difficulty in enlisting for the other troops men in every way suitable for the regiment.
11th ditto -	No difficulty have been felt in the XIth Bengal Lancers, since the regiment returned to the Punjab. While the regiment was at Allahabad some slight difficulty was experienced in obtaining Patha and Dogra recruits in every way suitable.
12th ditto -	I have experienced no difficulty in procuring recruits of good physique of late years.
13th ditto -	In the 13th Bengal Lancers not the slighiest difficulty has been experienced in securing good recruits.
14th ditto -	Ever since the Bhootan campaign, I have expierenced more or less difficulty in obtaining recruits of the proper class and stamp; the majority, instead of being the sons of land owners and respectable farmers, are either their poor relations, or agricultural labourers.
15th ditto -	No difficulty has been experienced in obtaining recruits of good physique. Difficulty has always been experienced in obtaining among the classes from which the 15th Bengal Cavalry is recruited, men possessed of sufficient means to purchase Assamees, but this difficulty has not increased of late years.
16th ditto -	Recruits with the necessary requirements I have always been able to obtain hitherto, but at Pashawur I had a little difficulty as the down-country men did not care about serving so far from their homes.
17th ditto -	As yet I have experienced no difficulty in getting recruits of suitable physique.
18th ditto -	It was found very difficult to get a good stamp of Jat and Rajpoot recruits; this was because I believe these classes found themselves so very much better off as Zemindars. There is no difficulty in procuring Punjabee Mahomedans or Sikhs, of good physique, though the former are very impecunious and generally require assistance.
19th ditto -	Considerable difficulty has been experienced during the last three or four years in procuring recruits of good physique. Pathans as a rule will not take service at a great distance from their homes, except in war time, and those already enlisted are very apt to get home-sick and apply for their discharge, when their regiment is stationed out of the Punjab. Punjabee Mahomedans from the Jhelum and Salt Range districts, of good physique and who make good Cavalry soldiers in peace time, are more easily procurable than either of the above classes and we have drawn largely from those parts in the last two years.
1st Native Infantry -	There is no difficulty in obtaining recruits of good physique.
2nd ditto -	I have found no difficulty up to the present time.
3rd ditto -	Of late years the men are *not* so fine as those that used to enlist in the Bengal army.
4th ditto -	The difficulties as compared with former years in obtaining recruits of the same class and equal in physique is very great, For this there are many reasons. I do not think the army is now so attractive as it was.
5th ditto -	Difficulty has been experienced in obtainiug good recruits.
6th ditto -	Of late years great difficulty has been experienced in securing recruits of good physique. Sooner than have any men of an indifferent physique in the regiment, it has been allowed to remain under strength.
7th ditto -	No difficulty has been experienced in procuring recruits of the standard height and of good physique during the last few years.
8th ditto -	No difficulty has been experienced in obtaining recruits of good physique in this regiment.
9th ditto -	No difficulty to speak of; though Goorkhas from Nepal and Dograhs of good stamina are not easy to get.
10th ditto -	Recruiting parties have experienced great difficulty in obtaining recruits of good physique, who object to serve in Lower Bengal, owing as they state to the bad water and sickness.
11th ditto -	There has been no difficulty during the past three years, during the stay of the regiment at Bareilly in getting recruits of good physique.
12th ditto -	Difficulty has been experienced in obtaining recruits of late years, and particularly so of good physique. The men find it vesy difficult to maintain themselves on their pay, at the present time, when the price of every thing has increased so very largely.
13th ditto -	There has been no difficulty in procuring recruits of good physique, yet at the same time, the men who now enlist do not appear to me to be of the size and build of those of former years, say twenty to twenty-five years of age.

Regiments.	Abstract of Replies.
14th Native Infantry -	No difficulties have been experienced in securing good recruits for the regiment.
15th ditto -	I have had no difficulty during the thirteen years that I have commanded the regiment in getting recruits, and there has been no falling off in physique; but the regiment, being essentially a Sikh regiment, is a favourite with men of that class.
16th ditto -	No difficulty has been experienced.
17th ditto -	There has been great difficulty in procuring good recruits of late years, and many are discharged as physically unfit after a short trial. At present there are thirty-five vacancies in the 17th Regiment Native Infantry.
18th ditto -	I do not consider that the 18th Regiment Native Infantry has experienced any real difficulty of late years, in securing recruits of good physique.
19th ditto -	Difficulty has of late years been experienced in obtaining good recruits, especially Sikhs.
20th ditto -	This regiment has been inspected during the last week by the Brigadier General commanding. He has remarked that he does not think the recruits come up to the good material in the regiment. They are not so good in point of physique. One difficulty I have experienced has been owing to the regiment having been stationed so far down as Delhi; but I think another difficulty can be fairly put down to the sepoy's pay being so small, that it is not sufficient to attract the best men. A recruit has to pay a great deal for his half mounting.
21st ditto -	Great difficulty is experienced in obtaining a good stamp of Sikh recruits for the Native army, owing to the increased demand for these men not only for the Bengal, but for the Bombay army.
22nd ditto -	It has for some years past been very difficult to get good recruits, owing I think, to most of the Bombay Native regiments recruiting from the Punjab, as also to the service not being attractive enough on account of the pay being so small.
23rd ditto -	There is in my opinion an undoubted difficulty in obtaining recruits of good physique, but I find that men improve physically in a marvellous manner, after they have been a few months in the service from a sufficiency of food, &c., This tends to prove that none but those in the poorest circumstances enlist. In India as elsewhere the labour market bids against the State for able-bodied men, and I do not think that the inducements offered by the State are sufficiently good to attract the best men to the military service. I refer only to Muzbees, of which class my regiment is exclusively composed.
24th ditto -	Difficulty has been experienced in recruiting Sikhs from the Manjha districts.
25th ditto -	I have not had any difficulties to contend with in the enlistment of recruits of good physique.
26th ditto -	Considerable difficulty has been experienced by recruiting parties in obtaining good Sikh recruits away from the regiment. Of the recruits brought by them, many have to be sent to their homes again, as physically unfit. Good Pathans are obtainable but the excessive recruiting that takes place from that class in *British territory* renders them few in numbers. Good Dogras are now difficult to obtain; the military spirit seems to be leaving the class.
27th ditto -	Recruits of good physique, more especially Sikhs, are more difficult to be proccured of late years.
28th ditto -	No difficulty has been experienced of late years in securing recruits of good physique.
29th ditto -	Great difficulty has been experienced of late years in securing recruits of good physique and the difficulty seems to be increasing. This may be assigned to the fact that the service is less profitable to the soldier than formerly; while labour wages and prices have increased on all sides his pay has not increased in a corresponding degree.
30th ditto -	The recruits enlisted during the last four or five years are not of as good physique as they ought to be; though no difficulty has been experienced in keeping up the establishment of the 30th Regiment Punjab Native Infantry, recruiting parties cannot obtain really good, able-bodied men.
31st ditto -	The demand for recruits every year is very great, as all regiments in the Bengal and Bombay Presidencies, having Punjabees in them, send recruiting parties to the Punjab; hence there is a difficulty in procuring good men.
32nd ditto -	I have found no difficulty in procuring good recruits for the regiment.
33rd ditto -	Great difficulty has been experienced in obtaining Aheers of a proper standard and physique.
34th ditto -	Since I assumed the command of the 34th Regiment Native Infantry (*i.e.*, in 1861), I have never had any difficulty in getting recruits of the high castes. These I can get in any number and *pick* them. At Jhansie and at Morar and in Bengal (Barrackpor,) I *had* much difficulty in getting "Mehters" and "low caste."
35th ditto -	Difficulty has been experienced in securing recruits of good physique for the 35th Native Infantry, but that only of late years. I assign the cause to the scarcity of men of the necessary physique in many of the castes of which this regiment is composed.

Regiments.	Abstract of Replies.
36th Native Infantry -	Men of sufficiently good physique can be obtained, but many who present themselves at Regimental Head Quarters, and *many* who are passed into the service, at a distance, are very inferior and must be rejected. Thus to get a good body of men there must be a careful and judicious selection. This takes times and causes there being always many vacancies in the ranks. I have never found any difficulty in getting good Jât Sikhs from Puttialla and thereabouts, but a considerable proportion of Rajpoots and Bramins, and a greater number of Aheer, Gwallas, Jats, and Kurnees have to be rejected. It is very difficult to get good Jats for the Infantry.
37th ditto -	No difficulty has been experienced in getting suitable recruits of good physique.
38th ditto -	*Chuttries, Aheers and Koormies.*—In the way of enlisting these castes difficulties exist, owing to the distance of Buxa from the recruiting districts, and the unpopularity amongst Hindoostanees of the station. A native officer who was in command of one of the recruiting parties last year informed me, that he could have readily brought many more men than he did, had not the station of Buxa been in disrepute in the districts he visited. *Jats*, of which race there should be two companies in the regiment, are difficult to procure, owing to (I believe) an admitted disinclination on the part of these men to infantry service.
39th ditto -	There has been considerable difficulty of late years in getting recruits of really good physique.
40th ditto -	There certainly is a difficulty in securing recruits of intelligence and of good physique. Men of intelligence and of respectacle families are not attracted by an offer of rupees seven per mensem, less deduction on account of clothing.
41st ditto -	Of late years recruiting has been more difficult, and as compared with old times there is a very marked change. Formerly men used to seek service. When my old regiment, the 61st Native Infantry, marched from Lucknow for the Panjab in 1854 some fifty fully trained supernumeraries accompanied it. Now recruits have mostly to be sought, and many are anxious to get away as soon as three years are completed.
42nd ditto -	It has been found very difficult to obtain "Goorkhas" of good physique. Also the "Jurwahs," who present themselves for enlistment are not such good men as of former years.
43rd ditto -	No difficulty has been experienced in securing recruits of good physique; the physique of the regiment generally has materially improved within the last few years.
44th ditto -	No difficulty has been experienced by the recruiting parties sent out annually of late years to obtain recruits; but few recruits of the Goorkha caste, of which the regiment is mainly composed, have presented themselves for enlistment at head-quarters, since the regiment left Shillong and descended to the plains.
45th ditto -	We have always had difficulty in procuring recruits from the Manga Sikh districts, from which we principally enlist, as from the opening up of the canals they have become more wealthy; the Malwaie Sikh districts more readily afford recruits except in the seasons of plenty; but the low pay of the Sepoy with the liability to serve in Bengal, the usual food of which country is unsuitable to the Sikh, and therefore his expenses are rendered heavier than the Poorbeeah or most other castes; until the last year we have always got Sikhs of very good physique, we obtained the best in the years 1871 and 1872, and the worst this year.
1st Goorkhas -	During the six years and nine months I have commanded the regiment, I have never experienced any difficulty in procuring Goorkha recruits, of good physique and proper caste. On this date there is not a single vacancy in any grade in the regiment.
2nd ditto -	This regiment is recruited principally from Nepaul; men who go on furlough bring back their relatives, and recruiting parties are sent down to attend the fairs held along the British and Nepaul borders. I cannot state positively that we have had great difficulty in securing recruits of good physique of late years. This regiment has not required any great number in any one year. I may mention that it has just taken us nearly four months to obtain twenty young Goorkhas.
3rd ditto -	No difficulty in procuring the number required. Physique of recruits last joined excellent; regiment up to established strength, and ten good lads waiting for vacancies.
4th ditto -	No difficulty has been experienced of late years in securing recruits of good physique.
Sappers and Miners -	Difficulty has been experienced of late years in securing recruits of good physique.

(APPENDIX F.)

Bengal Native Army.

Total strength on 1st June 1875	Cavalry Sowars - 7,232 Infantry Sepoys - 29,804		37,036
Number of Sowars and Sepoys under 6 years' service, and consequently not in receipt of good-conduct pay:			
	Cavalry - - - 3,308 Infantry - - - 14,157	17,456	
Number of Sowars and Sepoys with 6 years' service and upwards, who have forfeited good-conduct pay in consequence of misconduct:			17,757
	Cavalry - - - 71 Infantry - - - 221	292	
Number of Sowars and Sepoys of upwards of 6 years and under 10 years' service, in receipt of the first rate of good-conduct pay, at Rupee 1:			
	Cavalry - - - 1,422 Infantry - - - 7,782	9,204	
Number of Sowars of upwards of 10 years' and under 15 years' service, and Sepoys of upwards of 10 years' service, in receipt of the second rate of good-conduct pay, at Rupees 2:			19,279
	Cavalry - - - 976 Infantry - - - 7,644	8,620	
Number of Sowars of upwards of 15 years' service, in receipt of the third rate of good-conduct pay, at Rupees 3:			
	Cavalry - - - 1,455	1,455	
Number of Sowars and Sepoys of 30 years' service and upwards:			
	Cavalry - - -	66	
	Infantry - - -	26	
	Total	92	

According to the last statement (dated 3rd December 1874) from the Controller of Military Accounts, there were 33,690 pensioners from the Bengal Army in receipt of pension.

P. S. LUMSDEN, Major-General,
Adjutant-General in India.

Adjutant-General's Office,
Head Quarters, Simla 16th June 1875.

APPENDIX S.

ABSTRACT of opinions of general officers from the confidential reports of the inspection of Bengal cavalry and Native infantry, in 1873, 1874, and 1875.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
1st Bengal Cavalry. Col. W. R. Alexander, Commandant, 1873. Lt.-Col. R. Jenkins, officiating Commandant, 1874 and 1875.	Class Regiment. Recruited entirely of Hindustanee Mussulmen.	1873. On the whole the regiment is in an efficient state; the men drilled well and steadily. The Native officers are not very smart, but appeared generally to know their work. Neza bazee and other exercises do not appear to be encouraged in the regiment; although this was pointed out at the last inspection, very few men joined and none of the officers. (Signed) W. J. INGALL, Brig.-Gen. 1874. Major-General Brind reports:—"I regret not being able to approve entirely of the state of this regiment, as I have of other regiments previously inspected. The defects, however, are not of a nature likely to attach to it long, if that attention to my observations is accorded by Colonel Jenkins, and his European and Native officers, which I called for on the several parades. The extreme unsteadiness and apparent want of control and power to regulate paces and formation seemed to pervade all ranks, more or less, to such an extent that it showed a want of appreciation of the object of manœuvres, and gave a peculiarly ragged appearance to every formation, from which it took a long time to recover. From the commanding officer's not observing, or attempting to correct, the subordinate officers allowed all to pass as though a general want of intelligence existed." 1875. Sir J. Brind reports:—"I consider that great credit is due to the regiment for the conspicuous improvement effected since last year's inspection, when I had occasion to bring to the notice of his Excellency the Commander-in-Chief certain defects in the drills and general field exercises urgently requiring correction.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
		It is my gratifying duty to report that the course of study and instruction so ably carried out under the supervision of Colonel Snow, commanding at Cawnpore, has resulted in most satisfactory reform, so that the 1st Bengal Cavalry is in a fair way of bearing comparison with the other regiments in the division. Colonel Jenkins and his officers (European and Native) accepted the necessity of elementary training for horse and man to secure the steadiness and correctness in all drills required by Lord Napier's remarks upon my report of the regiment; and the spirit of emulation pervaded all ranks to such an extent that voluntary instruction has been carried on during the recess season with invariable favourable results. * * * The above remarks apply particularly to the various drills and exercises; but in all departments I observe evidence of the good soldier's pride. Appearance of the regiment on parade and garrison duties, its interior economy and discipline, are quite satisfactory."
2nd Bengal Cavalry. Capt. C. W. Campbell, officiating Commandant, 1873 and 1874. Col. O. Wilkinson, Commandant, 1875.	*General Mixture.* Mussulmen, Dogras, Sikhs, Jats, Rajpoots and Brahmins.	1873. On the whole the regiment is in a satisfactory state; and still maintains its high character for discipline and loyalty. All the British officers are acquainted with their duties—zealous, energetic, and possessing *esprit de corps*. The Native officers are a very respectable body of men, quite competent to command their troops, or exercise the regiment, but were not quite perfect in the placing of picquets, posting videttes, &c. The regiment in general did not acquit itself satisfactorily on this point. (Signed) W. Olpherts, Brig.-Gen. 1874. A satisfactory report. The European and Native officers are generally well instructed, and appeared to understand their duties. The regiment is, however, so divided into detachments that it is difficult to say whether any improvement has taken place since last inspection; those men who were present appeared to be acquainted with their drills and duties. (Signed) W. Olpherts, Brig.-Gen. 1875. The general state of the regiment is highly satisfactory. A well regulated system of economy has been established. The field exercises and movements were very well performed, and the regiment has been carefully instructed in skirmishing, outpost and patrol duties. (Signed) J. Brind, Maj.-Gen.
3rd Bengal Cavalry. Col. G. W. M. Hall, Commandant, 1873, 1874 and 1875.	*Class Troop System.* 3 troops Hindustanee Mahomedans. 1 troop Sikhs. 1 „ Jats. 1 „ Rajpoots.	1873. The regiment is in very good order, having improved much since since last inspection. The officers are smart and intelligent, and zealous in the performance of their duties. The Native officers are well instructed, and are a most respectable intelligent body of men. The field exercises and movements were performed with rapidity and precision. (Signed) J. M. Walter, Brig.-Gen. 1874. A well-drilled and well set up body of men. Everything was in the most perfect order, and there was nothing that could be found fault with. (Signed) J. M. Walter. Brig.-Gen. 1875. This regiment is in a high state of efficiency and discipline, the result of the *esprit de corps* that pervades all ranks. (Signed) R. Hume, Brig.-Gen.
4th Bengal Cavalry. Lt.-Col. G. Hankin, Commandant, 1873, 1874 and 1875.	General mixture	1873. The regiment is in good order. The men are clean, smart, and well drilled, and went through all the manœuvres steadily. Outpost duty was also well performed. The Native officers are an intelligent body of men, and handled their troops and squadrons very creditably. Neza bazee has not been generally practised in the regiment. (Signed) W. J. Ingall, Brig.-Gen. 1874. Considering all things the state of the regiment is quite satisfactory, but time is wanted to make it thoroughly smart. (Signed) A. E. Hardinge, Maj.-Gen. 1875. The state of the regiment is satisfactory, and credit is due to the unflagging exertions of its British officers to raise its standard of efficiency. The Native officers and non-commissioned officers are an intelligent and respectable body of men. The field exercises were performed correctly, and in brigade drill the regiment has made a marked improvement, the result of its association with the 15th Hussars. (Signed) A. E. Hardinge, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
5th Bengal Cavalry. Lieut.-Col. C. J. S. Gough, Commandant, 1873, 1874, and 1875.	General mixture	1873. Major-General Macdonell says:—"I have much pleasure in submitting, for the information of the Right Honourable the Commander-in-Chief, this very creditable and satisfactory report of my inspection of the 5th Bengal Cavalry at Jhelum. It has been my good fortune to witness and verify the efficiency and condition of the regiment, both in the field and in quarters, and I cannot in words speak too highly or do justice to the intelligence and exertions of Colonel Gough, V.C., and his officers." 1874. The regiment is in a very high state of efficiency and discipline. As a body the Native officers are an intelligent, useful, and active body of men, and have been especially and carefully instructed in all their duties. (Signed) A. Macdonell, Maj.-Gen. 1875. An excellent report. The manner in which the duties are carried out by Lieutenant-Colonel Gough precludes the possibility of finding fault with any detail, and the general efficiency of the regiment is generally recognised by all who have seen it. (Signed) A. Macdonell, Maj.-Gen.
6th Bengal Cavalry. Col. J. F. Richardson, C.B., Commandant, 1873. Major G. A. Baker, officiating Commandant, 1874 and 1875.	*Class Troop System.* 1 troop Hindustanee Mussulmen. 1 „ Trans-Indus Punjab and Border Tribes. 1 „ Hindustanee Hindoos. 2 troops Sikhs. 1 troop Jats.	1873. The state of the regiment is highly satisfactory. It is composed of a very fine body of men, who are smart and well drilled, and particularly well mounted. The British officers are fully acquanted with their duties and perfectly qualified for their different situations, The Native officers are very respectable, intelligent, and zealous body of men. (Signed) R. O. Bright, Brig.-Gen. 1874. The regiment is in very good order. The Native officers are a remarkably intelligent and zealous body of men. At the late Agra Durbar they received especial notice and commendation from his Excellency the Viceroy. The drill of the men is excellent, and their knowledge of outpost duty highly creditable. (Signed) R. O. Bright, Brig.-Gen. 1875. The regiment is in a most satisfactory state; the zeal and intelligence of the European officers leave nothing to be desired; the Native officers understand their work, and do it thoroughly, and the non-commissioned officers are smart and intelligent, and the men ride well, drill well, and are skilful in the use of their arms. (Signed) R. O. Bright, Brig.-Gen.
7th Bengal Cavalry. Lieut.-Col. F. C. J. Brownlow, officiating Commandant, 1873 and 1874. Col. L. J. Farquharson, Commandant, 1875.	General mixture	1873. Satisfactory on the whole. The regiment turned out very clean and smart, and drilled steadily, but the men as a body are not of good physique, some of them are small and "shabby" looking. Some of the recruits appeared very small, and it is stated that the pay is not sufficient to induce good men with money to enlist. The regiment requires instruction in outpost duty, skirmishing and dismounted drill, which were faulty. The Native officers also require more instruction, but they are all zealous and intelligent. (Signed) H. Tombs, Maj.-Gen. 1874. The general appearance, bearing, and performance of this regiment, both regimentally and in brigade with the other arms, was very satisfactory. (Signed) W. Olpherts, Brig.-Gen. 1875. On the whole the regiment is in a satisfactory state; a good system of interior economy has been established, and every attention has been paid to the instruction of both officers and men; the regiment, however, requires more practice at outpost duty. (Signed) W. Olpherts, Brig.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
8th Bengal Cavalry. Lt.-Col. W. J. Ward, Commandant, 1873, 1874 and 1875.	*Class Troop System.* 1 troop Hindustanee Mussulmen. 1 „ Pathans. 1 „ Punjabee Mahomedans. 1 „ Hindustanee Hindoos. 1 „ Bundelas. 1 „ Jats.	1873. The corps is composed of a fine body of men, who are well equipped and well mounted. Both European and Native officers are competent to command their troops in the various situations of service. (Signed) J. Travers, Maj.-Gen. 1874. The regiment appears to be in good order, and in an efficient state. The Native officers are well instructed and understand their work. (Signed) T. F. Wilson, Brig.-Gen. 1875. An improvement has taken place in the regiment since last inspection. The interior economy is good, and the field exercises were correctly performed. The "dismounted service" of the regiment is unusually good; some of the non-commissioned officers are rather indifferent. (Signed) T. F. Wilson, Brig.-Gen.
9th Bengal Cavalry. Lt.-Col. H. L. Campbell, Commandant, 1873, 1874 and 1875.	*Class Troop System.* 1 troop Pathans - 2 „ Punjabee Mahomedans. 2 „ Sikhs. 1 „ Dogras and Hillmen.	1873. The regiment went through its inspection in a highly satisfactory manner, and no fault was found. The European officers appeared fit for any duties in the field or in quarters, and the Native officers are experienced and understand their duties thoroughly. (Signed) A. Macdonell, Maj.-Gen. 1874. A satisfactory report. (Signed) J. D. Wallcombe, Brig.-Gen. 1875. The regiment is in a high state of order, the men are well mounted and equipped, and the movements were performed with a steadiness seldom surpassed. The European officers have a thorough knowledge of their work, and the Native officers are equally acquainted with their duties. The regiment displayed great intelligence at outpost duty. (Signed) J. D. Wallcombe, Brig.-Ge
10th Bengal Lancers. Lt.-Col. C. A. Palliser, C.B., Commandant, 1873, 1874 and 1875.	*Class Troop System.* 1 troop Pathans - 1 „ Punjabee Mahomedans. 2 „ Sikhs. 1 „ Dogras and Hillmen. 1 „ Jats.	1873. The 10th Bengal Lancers is in an extremely efficient state. It made a splendid appearance on parade. (Signed) T. F. Wilson, Brig.-Gen. 1874. The regiment is in a most efficient state, and is composed of an extremely fine body of men. Every one appears to have been extremely well instructed. (Signed) T. F. Wilson, Brig.-Gen. 1875. The 10th Bengal Lancers is in an extremely efficient state. The European and Native officers thoroughly understand their work, and are perfectly efficient in the performance of their respective duties. The men are well set up and drilled, and performed the movements extremely well. (Signed) T. F. Wilson, Brig.-Gen.
11th Bengal Lancers. Capt. A. A. Dick, Commandant, 1873. Capt. R. E. Boyle, officiating Commandant, 1874; Commandant, 1875.	*Class Troop System.* 3 troops Sikhs - 3 „ Punjabee Mussulmen.	1873. The regiment is composed of a fine body of men, varying considerably in physique, but all soldier-like and serviceable. The field movements were performed with accuracy. The European officers all handled their regiment with facility, and the Native officers are well instructed in squadron drill. (Signed) P. Hill, Maj.-Gen. 1874. The regiment is in a remarkable state of good order and efficiency. The officers and men are splendidly mounted, and are excellent riders. The Native officers and men are of an excellent stamp. More attention, however, is required to practical instruction in picquet and outpost duty. (Signed) W. Payn, Brig.-Gen. 1875. The regiment is in every respect efficient, and is one of the best mounted corps in India. The field exercises were performed correctly. A good feeling prevails amongst the officers and men. The Native officers are, as a rule, excellent characters, and showed a good deal of intelligence. Some difficulty is experienced in obtaining "Dogra" and "Pathan" recruits. (Signed) Chas. Reid, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
12th Bengal Cavalry. Lt.-Col. H. H. Gough, Commandant, 1873, 1874 and 1875.	*Class Troop System.* 1 troop Pathans - 1 „ Punjabee Mussulmen. 2 „ Sikhs. ½ „ Dogras and Hillmen. ½ „ Bundelas. 1 „ Jats.	1873. The regiment is well drilled, and in a very efficient state. The British officers are all very good, and performed the movements rapidly and correctly, and from their answers to the questions put them showed an intimate acquaintance with all the details of cavalry drill. The Native officers are well instructed, and understand their duties. The recruits are a very good body of men, and likely to be an acquisition to the corps. (Signed) T. F. Wilson, Brig.-Gen. 1874. The corps is in a very efficient state; both British and Native officers acquitted themselves well. (Signed) T. F. Wilson, Brig.-Gen. 1875. The regiment is in good and efficient order. The British officers are in every respect efficient, and the Native officers and non-commissioned officers are on the whole active and intelligent. (Signed) T. F. Wilson, Brig.-Gen.
13th Bengal Lancers. Maj. R. C. Low, Commandant, 1873 and 1874. Capt. W. H. Macnaghten, officiating Commandant, 1875.	*Class Troop System.* 1 troop Pathans - 2 „ Punjabee Mahomedans. 2 „ Sikhs. 1 „ Dogras and Hillmen.	1973. Appears a good serviceable regiment. The men are of good physique, and have the appearance of veteran soldiers. Their movements are performed according to regulations, and in everything requiring dash and rapidity the regiment excels, and on service would be found second to none. The European officers are all very competent, though more theoretical knowledge is desirable, as well as practice for the Native officers in squadron drill. The latter understand outpost duty thoroughly, and are able to illustrate it by sketch and report. (Signed) Percy Hill, Maj.-Gen. 1874. The regiment is in a very efficient state. British officers smart, and drilled the regiment in a most efficient manner. The Native officers also drilled their troops most creditably. (Signed) Chas. Reid, Maj.-Gen. 1875. A very efficient regiment. The European officers are qualified in every respect, and the Native officers are a very intelligent body of men, very smart and active in the discharge of their duties. The field exercises were performed with great correctness and according to regulations. (Signed) Chas. Reid, Maj.-Gen.
14th Bengal Lancers. Lt.-Col. B. W. Ryall, officiating Commandant, 1873 and 1874. Col. J. I. Murray, C.B., Commandant, 1875.	*Class Regiment.* "Jat Horse" -	1873. The regiment is in very fine order, and nothing could be better than the manner in which it works on parade. Its drill is admirable, and all seem to know their work. More instruction is however required in picquet duties. (Signed) J. D. Wallcombe, Brig.-Gen. 1874. Many defects were noticed, which are attributed to the fact of the regiment having been broken up into detachments whilst at Deolee, but it is expected that with the present surroundings, and the well-known abilities of its Commandant, the condition of the regiment by the next inspection will be all that can be desired. (Signed) A. Macdonell, Maj.-Gen. 1875. The improvement in this regiment continues; and though further instruction in field manœuvres and outpost duties is still required by the non-commissioned officers and men, the general efficiency of the corps is satisfactory. (Signed) A. Macdonell, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
15th Bengal Cavalry. Maj. G. A. Prendergast, Commandant, 1873. Maj. W. Musgrave, officiating Commandant, 1874 and 1875.	*Class Regiment.* "Mooltanee Horse" -	1873. An efficient corps, composed of a very good body of men. The movements were very well performed, more especially the duties of outposts, patrols, &c. Both European and Native officers understand their duties thoroughly. (Signed) W. Olpherts, Brig.-Gen. 1874. A very favourable report in every particular. The Native officers are said to be a very superior body of men. (Signed) P. Hill, Maj.-Gen. 1875. A similarly favourable report as last year. The regiment is very smart and very efficient in all respects. (Signed) P. Hill, Maj.-Gen.
16th Bengal Cavalry. Capt. R. Topham, Commandant, 1873, 1874 and 1875.	*Class Troop System.* 1 troop Hindustanee Mahomedans. 2 „ Hindustanee Hindoos. 1 „ Dogras. 2 „ Sikhs.	1873. Notwithstanding that there was only one British officer present at inspection the regiment was very steady on parade, and gave proof that it is well drilled, and that the Native officers are perfectly efficient. The recruits enlisted since last inspection are very indifferent, and some are too old. Attention has been drawn to this point. (Signed) T. F. Wilson, Brig.-Gen. 1874. A very favourable report, reflecting the very highest credit on the commanding officer. (Signed) W. Olpherts, Brig.-Gen. 1875. Everything connected with the regiment was found to be in a perfectly satisfactory state. The regiment turned out in a smart and efficient manner, and executed the field exercises with much celerity and precision. (Signed) W. A. Armstrong, Col.
17th Bengal Cavalry. Lt.-Col. F. W. Graham, Commandant, 1873, 1874 and 1875.	*Class Troop System.* 3 troops Mahomedans 3 „ Hindoos.	1873. Since last inspection a very marked improvement has taken place in the regiment, and in another year it will hold its own with many of the Native cavalry regiments. (Signed) J. Turner, Brig.-Gen. 1874. Major-General Macdonell says :—"It gives me pleasure to record my opinion, and to testify that Lieut.-Colonel Graham is energetically continuing the work of thorough reform. In men and horses I believe this regiment cannot be surpassed by others, and with material so susceptible of being trained to the best account in the hands of its present commandant. The non-commissioned officers as a body are indifferent, but more work has been thrown on them lately, and they have been made to understand their responsibilities." 1875. Favourable on the whole. Some progress has been made, but the regiment requires competent instructors of all grades, otherwise it will remain in a state which does not represent efficiency. (Signed) A. Macdonell, Maj.-Gen.
18th Bengal Cavalry. Col. F. H. Smith, Commandant, 1873 and 1874. Capt. T. R. Davidson, officiating Commandant, 1875.	*Class Troop System.* 1 troop Hindustanee Mahomedans. 1 „ Punjabee Mahomedans. 1 „ Hindustanee Hindoos. 1 „ Sikhs. 1 „ Jats. 1 „ Tewannas.	1873. The regiment is in good order, and the men drilled well and steadily, and all ranks appeared to be well up to their work. All the officers take an interest in the regiment, and a very good feeling appears to exist between the European and Native officers and men. (Signed) W. J. Ingall, Brig.-Gen. 1874. Owing to the paucity of officers and the heavy duty to be performed at Allahabad, the commanding officer has had many difficulties to contend with, but the drill of the regiment is excellent, the spirit of the officers and men most praiseworthy, the interior economy very good, the lines neat, and the books admirably kept. The discipline is good, and the conduct of the men all that can be desired. (Signed) J. Brind, Maj.-Gen. 1875. With the exception of a falling off in the correctness of the time and pace in moving, and in firing from horseback, the same standard of excellence exists, and great credit is due to the officiating commandant in keeping up the superiority of the regiment. (Signed) J. Brind, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
19th Bengal Lancers. Lieut.-Col. W. Fane, C.B., Commandant, 1873, 1874 and 1875.	*Class Troop System.* 1 troop Mooltanee - 1 „ Pathans. 1 „ Punjabee Mahomedans. 2 „ Sikhs. ½ „ Dogras and Hillmen. ½ „ Jats.	1873. The regiment is in an admirable state of efficiency, and is the steadiest and best drilled of any that have been inspected. The men are well exercised in the use of the lance, and are well dressed and appointed, and cleanly in their lines. (Signed) H. Tombs, Maj.-Gen. 1874. The appearance of this regiment, its drill and discipline, are all that can be desired. (Signed) W. Olpherts, Brig.-Gen. 1875. A very favourable report. The conduct of the men during the past year has been excellent, and the regiment has performed all its duties in a most cheerful, soldierlike and efficient manner. No regiment in the division has given more satisfaction than the 19th Bengal Lancers. (Signed) W. Olpherts, Brig.-Gen.
1st Native Infantry. Col. J. R. McMullen, Commandant, 1873, 1874, and 1875.	*General Mixture.* Punjabee and Hindustanee Mussulmen, Brahmins and Rajpoots, with Sikhs and low-caste men.	1873. Generally satisfactory. The regiment is backward in light infantry and outpost duties. The former was executed indifferently, and the two officers sent out with the picquets showed a want of knowledge in selecting good positions. The men, however, drilled very steadily, and the manual firing and bayonet exercises were well performed. (Signed) T. A. Carey, Col. 1874. The general efficiency of the regiment reflects the greatest credit on the commanding officer and the adjutant. The manual and platoon exercises, and also the bayonet exercise, were performed to perfection ; the various battalion movements were executed in a most satisfactory manner ; points taken up without any hesitation, and altogether showing a thorough knowledge of their drill by both officers and men. The skirmishing was very good, the men evidently having been well taught. (Signed) J. F. Pennycuick, Col. 1875. The general result of the inspection is very satisfactory. The drill and instruction of the regiment was good, but the corps labours under the disadvantage of being located at an out station where it cannot be brigaded with other troops. Both European and Native officers are competent, and the latter commanded their companies efficiently. (Signed) W. Olpherts, Brig.-Gen.
2nd Native Infantry. Col. E. Oakes, Commandant, 1873. Lieut.-Col. W. B. Shawe, officiating Commandant, 1874; Commandant, 1875.	*General Mixture.* Brahmins, Rajpoots and Musselmen, with an inconsiderable mixture of low-caste men.	1873. On the whole the regiment is in an efficient state. The European officers are zealous and intelligent, and render every support to their commanding officer. The native officers commanded their companies well. The field manœuvres were performed well, but were more remarkable for great steadiness and correctness than for celerity. (Signed) W. J. Ingall, Brig.-Gen. 1874. A very favourable report on the general state of this regiment. Its appearance on parade was uniformly good and imposing. (Signed) J. Brind, Maj.-Gen. 1875. A remarkably fine regiment, in which a well regulated system of economy has been established; the soldiers are a fine body of men, well set up, well drilled, and steady under arms, and who went through their drill and movements with much precision and correctness; the European and Native officers, as also the non-commissioned officers, are competent in every respect. (Signed) J. Brind, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
3rd Native Infantry. Col. G. A. St. P. Fooks, Commandant, 1873, 1874 and 1875.	*General Mixture.* Hindustanee Musselmen, Brahmins and Rajpoots, and a small admixture of low-caste men.	1873. The regiment suffered last hot weather from sickness, which has been the cause of some slackness in the drill, but on the whole the general appearance of the regiment on parade was decidedly good. A well regulated system of economy has been established in the corps, and both European and Native officers understand and perform their duties in a competent manner. (Signed) W. J. F. Stafford, Brig.-Gen. 1874. Brigadier-General Stafford was very much pleased with both British and Native officers. The field movements were performed corectly and according to regulations. (Signed) W. J. F. Stafford, Brig.-Gen. 1875. On the whole satisfactory. The European officers render every support to their Commandant. The field exercises, including skirmishing, &c., were fairly performed. (Signed) W. J. F. Stafford, Brig.-Gen.
4th Native Infantry. Lt.-Col. H. C. Anderson, officiating Commandant, 1873; Commandant, 1874 and 1875.	*General Mixture.* Hindustanee Musselmen, Brahmins and Rajpoots, a small number of Aheers and low-caste men.	1873. This regiment is composed of a very fair body of officers, non-commissioned officers and men, who are steady under arms, and who drill with precision and accuracy. The officers, both British and Native, acquitted themselves creditably on parade, and showed that they had been carefully trained. (Signed) W. Sankey, Brig.-Gen. 1874. A favourable report. The European and Native officers are well instructed, and in every respect competent. The regiment is composed of a fine body of men, who are well drilled, and move well on parade. (Signed) W. Sankey, Brig.-Gen. 1875. Fairly satisfactory. The European officers are fairly efficient in the performance of their duties. The Native officers are well instructed, and commanded their companies efficiently. The manual firing and bayonet exercises and battalion drill were fairly performed. (Signed) W. Sankey, Brig.-Gen.
5th Native Infantry. Col. G. A. Fisher, Commandant, 1873. Lieut.-Col. W. J. P. Barlow, Commandant, 1874 and 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 1 company Hindustanee Musselmen. 1 company Jats. 1 company Goorkhas and Hillmen. 1 company Bundelas. 1 company Hindoos of inferior castes. 1 company Trans-Sutlej Sikhs.	1873. Unfavourable. The drill of the regiment is not satisfactory; the men moved without life or vigour, and displayed a want of smartness under arms, as well as in all duty matters. The skirmishing was indifferent, and very little knowledge was displayed in the duties of outpost. The discipline of the regiment is also slack, and some of the European officers were wanting in practical knowledge. (Signed) J. Travers, Maj.-Gen. 1874. At the last inspection a want of general smartness was noticed, but an improvement in this direction has been made. The Native officers might be smarter, but an improvement may be expected. All the European officers acquitted themselves creditably. The drill of the regiment is tolerable, but there is room for improvement. (Signed) A. E. Hardinge, Maj.-Gen. 1875. The state of the regiment is very satisfactory, showing a decided improvement upon the inspection of last year. The European officers are in every respects efficient, and thoroughly support their commanding officer in their several situations. The capacity of many of the Native officers is indifferent, and taken altogether are not of the stamp desired. The field exercises were performed correctly, but the regiment has not been instructed in running drill and shelter trench exercise. (Signed) A. E. Hardinge, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
6th Native Infantry. Col.G.Holroyd, Commandant, 1873, 1874 and 1875.	*Class Company.* 1 company Brahmins and Rajpoots. 1 company Hindustanee Mussulmen. 2 companies Jats. 1 company low-caste Hindoos. 1 company Punjabee Musselmen and Pathans. 1 company Dogras and Hillmen. 1 company Sikhs, Trans-Sutlej.	1873. The 6th Native Infantry is in an excellent state of drill and discipline, and still maintains its character for smartness and steadiness on parade. (Signed) R. O. Bright, Brig.-Gen. 1874. The regiment is in admirable order, and reflects the greatest credit on Colonel Holroyd and his officers, all of whom are very efficient and well instructed. The Native officers are also very well acquainted with their duties. A loyal good spirit pervades all ranks, and the regiment is in all respects a model sepoy corps. (Signed) W. Olpherts, Brig.-Gen. 1875. An excellent regiment, second to none in appearance, discipline, and general efficiency. A very loyal spirit exists in the corps. (Signed) W. Olpherts, Brig.-Gen.
7th Native Infantry. Lieut.-Col. F. J. Stephenson, officiating Commandant, 1873; Commandant, 1874 and 1875.	*General Mixture.* Mahomedans, Brahmins, Rajpoots, with a mixture of Sikhs and other castes.	1873. The state of the regiment reflects great credit on the European officers. The Native officers, non-commissioned officers and men are smart, well drilled and soldierlike in bearing, and steady on parade. The outpost duties, running drill, and shelter trench exercise were done creditably. (Signed) B. Fraser Tytler, Maj.-Gen. 1874. The regiment is in a highly efficient and creditable state. The men are very smart and soldierlike in appearance. The European officers are very intelligent, and are fully instructed in their duties, The Native officers are a highly respectable body of men, but as a rule are not very intelligent. (Signed) P. Hill, Maj.-Gen. 1875. A very efficient corps. The men are particularly well turned out, and set up, and are very steady under arms. The marching and exercises were decidedly good, though the former was slightly in excess of regulation pace. The field exercises were understood by all ranks, and in skirmishing an improvement has take place. (Signed) P. Hill, Maj.-Gen.
8th Native Infantry. Col. T. A. Carey, Commandant, 1873, 1874 and 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 1 company Hindustanee Mahomedans. 1 company low-caste Hindoos. 1 company Pathans. 1 company Dogras and Hillmen. 1 company Sikhs. 1 company other castes.	1873. The 8th Native Infantry is composed of a fine body of men, and their general appearance, dress, setting up and drill, is creditable to the European officers of the regiment. The British and Native officers have a very imperfect knowledge of outpost duties. This is attributed to the long time the regiment was located at the Presidency. Attention has been drawn to this point. (Signed) H. Tombs, Maj.-Gen. 1874. The regiment is in a satisfactory state, and is well cared for, and looked after in essential points of drill and discipline. (Signed) W. Olpherts, Brig.-Gen. 1875. The general appearance of the regiment on parade, and the manner in which it executed the various drills and duties, were satisfactory. (Signed) W. Olpherts, Brig.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
9th Native Infantry. Col. H. L. Pester, Commandant, 1873 and 1874. Lt.-Col. W. H. Hawes, Commandant, 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 1 company Hindustanee Mahomedans. 1 company Jats. 2 companies Bundelas 1 company Dogras and Hillmen. 1 company Goorkhas.	1873. The drill and discipline of the corps are in good order, but both officers and men are too much accustomed to the parade ground and its stiff drill, and would benefit much if attached to a camp of exercise. (Signed) H. Tombs, Maj.-Gen. 1874. The regiment is in a creditable state. It is composed of a fair average lot of men, well set up, and steady under arms. Their drill would be fair were not the pace much too slow. This has been pointed out to the commanding officer, with instructions to remedy the defect. (Signed) R. O. Bright, Brig.-Gen. 1875. There has been a decided improvement in this regiment since last inspection. The drill is improved, and the pace in marching is now correct. The Native officers are well instructed, and commanded their companies efficiently. (Signed) R. O. Bright, Brig.-Gen.
10th Native Infantry. Lt.-Col. A. Combe, officiating Commandant, 1873. Col. C. Lyons Montgomery, Commandant, 1874 and 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 1 company Hindustanee Mahomedans. 1 company Jats. 1 company Bundelas. 1 company low-caste Hindoos. 1 company Punjabee Mahomedans. 1 company Dogras.	1873. The 10th Native Infantry is n a satisfactory state, and the manner in which both officers and men performed their duties gave evidence of zeal and intelligence from all. (Signed) W. Sankey, Brig.-Gen. 1874. The corps is in a highly efficient state, and reflects great credit on both European and Native officers. (Signed) W. Sankey, Brig.-Gen. 1875. The regiment is composed of a fine body of men, but they have suffered much of late from sickness. They, however, turned out smart and clean, and gave satisfaction in the performance of their duties. Very great attention has been paid to the instruction and training of all ranks. (Signed) W. Sankey, Brig.-Gen.
11th Native Infantry. Col. E. D. Watson, Commandant, 1873 and 1874. Col. C. F. G. Lamb, Commandant, 1875.	*General Mixture.* Hindustanee, Mussulmen, Brahmins, and Rajpoots, with a proportion of Aheers, and a small admixture of low-caste men.	1873. The state of the regiment reflects great credit on its commandant. It is very well drilled, and a very good discipline is maintained. The European and Native officers understand their duties thoroughly; the latter acquitted themselves remarkably well on parade. (Signed) W. Olpherts, Brig.-Gen. 1874. The regiment has greatly improved since it was last inspected. In drill, discipline, and interior economy it is equal or superior to many regiments. All the European officers are very favourably reported on, and the Native officers are capable of drilling the battalion as well as their companies. (Signed) W. Olpherts, Brig.-Gen. 1875. The regiment presented a particularly smart and soldierlike appearance on inspection parade; the setting up of the men, and their steadiness under arms, left nothing to be desired. Arms, accoutrements, and ammunition were all in good order, and the various movements performed in brigade, battalion, and light infantry drill were all well executed. (Signed) W. A. Armstrong, Col.
12th Native Infantry. Col. H. B. Stevens, Commandant, 1873, 1874, and 1875.	*General Mixture.* Hindustanee, Mussulmen, Brahmins, Rajpoots, Punjabee Mahomedans, Sikhs, Pathans, and Hindoos of low-caste.	1873. The regiment is in a very efficient state in all respects. It is composed of an excellent body of men, who are well drilled, and very steady under arms. The mannal firing, and bayonet exercise were well done, as also the shelter-trench exercise. The target practice was excellent. The European officers are tolerably well instructed, and the Native officers are well acquainted with their work. (Signed) T. F. Wilson, Brig.-Gen. 1874. A very fine regiment, composed of a splendid body of men. The regiment drilled extremely well on parade, but when taken on rough ground, both officers and men were all abroad. Instructions have been issued on this point. (Signed) T. F. Wilson, Brig.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
		1875. Brigadier-General Wilson reports—"This fine regiment, although it has suffered a good deal from sickness lately, is in excellent order in all respects, and reflects much credit on the commandant, Col. Stevens, and also on the 2nd in command. All the Native officers commanded their companies well. The skirmishing of the corps was very good, and the target practice was admirable. There were no complaints of any kind, and the conduct of the regiment has been everything that could be wished. Everything in the regiment is well managed and cared for, and I could see nothing to find fault with."
13th Native Infantry. Lieut.-Col. H. King, Commandant, 1873 and 1874. Lieut.-Col. R. S. Moseley, Commandant, 1875.	*General Mixture.* Brahmins, Rajpoots, Hindustanee Mussulmen, Jats, Hindoos of other castes, &c.	1873. The regiment is in an efficient state, and fit for any service it may be called upon to perform. The men are clean, smart, and soldierlike in their bearing; are well drilled, and move steadily. The Native officers are very intelligent, and have been well instructed. They handled their companies very well on outpost duty, and in making an attack on a village. Great pains have been taken in teaching all ranks outpost duty. (Signed) W. J. INGALL, Brig.-Gen.
		1874. The general state of the regiment is most satisfactory. The European officers are all acquainted with their duties, and the Native officers are a very superior set set of men, intelligent, active, and well set up. Highly reported on for sobriety and soldierlike qualities. (Signed) J. BRIND, Maj.-Gen.
		1875. The 13th Native infantry is in an excellent state of discipline and efficiency. Its appearance under arms is soldierlike; its drills and exercises were performed with steadiness and intelligent correctness, and all ranks were prepared to show the duties required from them individually and collectively, with more or less correctness. (Signed) J. BRIND, Maj.-Gen.
14th Native Infantry. Col. C. C. G. Ross., Commandant, 1873. Maj. L. H. Williams, officiating Commandant, 1874 and 1875.	*Class Regiment.* Composed principally of Sikhs, a small number of Punjabee Mahomedans, and Pathans.	1873. The 14th Native infantry continues to maintain its high efficiency. It cannot be surpassed in its drill and exercises by any other regiment of Native infantry. (Signed) A. MACDONELL, Maj.-Gen.
		1874. An excellent report. Major General Macdonnell says—"The 14th Sikhs, at present under the command of Major Williams, is perhaps the best Native infantry regiment in my division. The high pitch of excellence established by Colonel Ross is continued under its present commander, who devotes himself arduously to the task of maintaining the system of the regiment, and keeping up its training * * * and the officers, non-commissioned officers and men take a pride in upholding this high proficiency." (Signed) A. MACDONELL, Maj.-Gen.
		1875. Major General Macdonell again reports—"This is my third general inspection of the 14th Sikhs, and on this occasion, as on former ones, whichever way I turned. I perceived nothing but a very high degree of efficiency and soldierlike bearing, The Native officers are a very well selected and martial body of men, whose zeal, intelligence, and smartness cannot be mistaken.
15th Native Infantry. Lieut-Col. R. Barter, Commandant, 1873, 1874, and 1875.	*Class Regiment.* Composed principally of Cis-Sutlej Sikhs. There are a few Trans-Indus Sikhs, Punjabee Mahomedans, and other castes.	1873. The regiment is composed of a very fine body of men. The field exercises and movements were performed correctly, and with due celerity, but the minutiæ of drill has been somewhat neglected. This, however, will soon right itself by a short course of steady drill. The European officers are a fair average stamp. (Signed) J. TURNER, Brig.-Gen.
		1874. A very efficient, well disciplined, and fine body of men. The European officers are zealous and intelligent, and understand their duties well. The Native officers are very well acquainted with their duties, praticularly so in the drill of their companies. (Signed) A. MACDONELL, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
		1875. The 15th Native Infantry is composed of a very fine body of men, powerful and active, and considerably above the average height. Their discipline, conduct, and soldierlike willingness on all occasions are in every way most gratifying. The turn out of the regiment for inspection was all that could be wished for. The interior economy, the arms and equipment of the men, and in fact all matters connected with internal arrangements deserves approval. A decided improvement has taken place in light drill and applied tactics. The musketry instruction has not been satisfactory, but improvement is promised. (Signed) A. MACDONELL, Maj.-Gen.
16th Native Infantry. Lieut.-Col. W. B. Girdlestone, Commandant, 1873 and 1874. Lieut.-Col. G. A. Brown, officiating Commandant, 1875.	*General Mixture.* Rajpoots, Brahmins, and Hindustanee Mussulmen. A small admixture of Sikhs and other castes.	1873. The regiment is a fine one, and looked remarkably well on parade. A few minor defects were noticed, but generally the movements were well executed. Both European and Native officers are well acquainted with their duties, and the men are well set up, and steady under arms. (Signed) W. J. F. STAFFORD, Brig.-Gen. 1874. One of the finest regiments in the district. (Signed) W. J. F. STAFFORD, Brig.-Gen. 1875. The 16th Native infantry is composed of a fine body of men, but it has fallen off in its drill, owing to its having had few opportunities of being exercised during the past cold season. A detachment of 200 men were employed with the Duffla Expedition, and the men were always found ready to perform their duties, but were not able to bear hard work as well as the Assam regiments. (Signed) W. J. F. STAFNORD, Brig.-Gen.
17th Native Infantry. Col. F. G. Stainforth, officiating Commandant, 1873. Col. J. Marquis, Commandant, 1874 and 1875.	*General Mixture.* Mussulmen (Hindustanee and Punjabee), Brahmins and Rajpoots, and a small number of other castes.	1873. Satisfactory on the whole. The corps looked well on parade, and the men were very steady, and performed the several movements with great readiness and exactitude. The discipline of the regiment is good, and the officers, both European and Native, are intelligent, and zealous in the performance of their duties. (Signed) P. HILL, Maj.-Gen. 1874. The discipline of the regiment is all that could be desired. Both officers and men are well trained, and great pains have been taken in their instruction. (Signed) CHAS. REID, Maj.-Gen. 1875. On the whole satisfactory. The regiment is well disciplined, and the European officers have spared no trouble to raise the standard of efficiency. The drill of the regiment is fair, and the outpost duties are well understood by all ranks, but more instruction is required in skirmishing, which was not satisfactorily done. (Signed) R. O. BRIGHT, Brig.-Gen.
18th Native Infantry. Maj. W. Winson, Commandant, 1873, 1874 and 1875.	*Class Company system.* 2 companies Brahmins and Rajpoots. 2 companies Hindustanee Mussulmen. 2 companies Goorkhas and Hillmen. 1 company Bundelas. 1 „ Hindoos of low caste.	1873. Unfavourable. There is a want of life and smartness in the regiment, both on parade and other duties. The movements were done in rather a slovenly manner, and without that smart intelligence which at once evinces a well taught and well disciplined soldier. The commanding officer, though zealous and anxious to do his best to make the regiment efficient, is deficient in some of the higher qualities to make a good commander. (Signed) J. TRAVERS, Maj.-Gen. 1874. A satisfactory report; a decided improvement being noticed in those points which were unfavourably reported on at the last inspection. (Signed) A. E. HARDINGE, Maj.-Gen. 1875. The corps (including the department at Futtehghur) is in an efficient state. The men were steady under arms, marched capitally, and performed all the exercises unusually well; the skirmishing and bayonet exercises were very good, especially the latter. The regiment has also improved in its musketry practice. (Signed) A. E. HARDINGE, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
19th Native Infantry. Lieut.-Col. J. F. Stafford, Commandant, 1873, 1874, and 1875.	*General Mixture.* Sikhs, Punjabee Mussulmen, and Border Tribes.	1873. The drill and appearance of the 19th Native Infantry and its interior economy reflect the highest credit on Lieut.-Col. Stafford. Everything, both on parade and in the lines, have evidence of an intelligent and watchful care for the welfare and comfort, as well as the efficiency of his men, on the part of the commanding officer. (Signed) C. H. Brownlow, Brig.-Gen. 1874. The very high state of efficiency of this regiment, its admirable interior economy the careful instruction of all ranks, and the apparent comfort and care of the men, reflect the greatest credit on Lieut.-Col. Stafford. The recruits of the regiment are not what they should be, but this is owing to the Punjab being overrun with recruiting parties from all parts of India. (Signed) C. H. Brownlow, Brig.-Gen. 1875. The regiment is in a highly efficient state. Since 1873, a very marked improvement has taken place in the health, physique, and general appearance of the men. The officers, both British and Native, show a practical knowledge of their duties, and their is every evidence that the non-commissioned officers and men are carefully trained and drilled according to regulations. The interior economy of the regiment is perfect, and its condition altogether reflects the highest credit on Col. Stafford. (Signed) C. H. Brownlow, Brig.-Gen.
20th Native Infantry. Maj. R. G. Rogers, officiating Commandant, 1873. Capt. H. W. Gordon, officiating Commandant, 1874. Lt.-Col. R. G. Rogers, Commandant, 1875.	*General Mixture.* Composed principally of Sikhs and Dogras. There are some Punjabee Mahomedans and Pathans.	1873. The defects pointed out at last inspection have all been remedied, and the regiment is in very good order. The men are clean, smart, and well set up, and have a soldierly appearance. Their skirmishing was particularly good. The interior economy of the regiment is good, and a well regulated discipline is established. (Signed) J. Travers, Maj.-Gen. 1874. The condition of the regiment is satisfactory. The British officers appear to require more instruction. The march past and movements were good. The Native officers showed more knowledge than is usually found in this class. The recruits are of excellent stamp. (Signed) A. E. Hardinge, Maj.-Gen. 1875. An exceedingly fine regiment, in a thoroughly efficient state. Its drill was steadily and well performed. The Native officers are unusually good, more especially on parade, where they commanded very well. (Signed) T. F. Wilson, Brig.-Gen.
21st Native Infantry. Lt.-Col. J. Hudson, officiating Commandant, 1873. Col. J. B. Thelwall, Commandant, 1874 and 1875.	*General Mixture.* Sikhs and Punjabee Mussulmen, Rajpoots, Pathans, and Khuttuks.	1873. The regiment is in a very efficient state. Every attention has been paid to the instruction and training of both officers and men, and a well regulated system of interior economy and discipline has been established in the corps. The European officers are competent and zealous in the performance of their duties, and the Native officers are qualified to command their companies. The field manœuvres were performed with correctness and celerity. (Signed) T. F. Wilson, Brig.-Gen. 1874. The regiment is in a very efficient state. Great pains have been taken in the musketry instruction, but the firing on parade was too hurried. All the European officers answered well all questions put to them. The Native officers understand their duties. The recruits are of a very good stamp. (Signed) T. F. Wilson, Brig.-Gen. 1875. A very fine regiment, composed of a well recruited, active, and smart body of men. It was attached to the camp of exercise at Rawulpindee, and from the commencement up to the day of inspection the most regular and constant attention was paid by all to the perfecting of all essential points of drill and efficiency (Signed) A. Macdonell, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
22nd Native Infantry. Lt.-Col. J.J.O'Bryen, officiating Commandant, 1873 and 1874. Lt.-Col. B. T. Stafford, officiating Commandant, 1875.	*General Mixture.* Sikhs and Punjabee Mahomedans preponderate. There are a few Pathans and a small number of other castes.	1873. The regiment was employed with the camp of exercise at Hussun Abdal, and though labouring under the disadvantage of having returned from the Looshaie expedition with its effectives considerably reduced, owing to sickness, it always displayed a soldierlike spirit of emulation, and, though not coming up to other corps, gave entire satisfaction. The discipline and interior economy of the regiment is very good. Every attention has been paid to the instruction and training of the regiment, and no doubt every care will be taken towards increasing its efficiency. (Signed) A. MACDONELL, Maj.-Gen. 1874. The 22nd Native Infantry is in an efficient state, but the European officers are far behind on theoretical questions connected with their profession, as regards reading and observation, and on subjects of current military information. Some other shortcomings were noticed, but every endeavour will be made to remedy defects by next inspection. The recruits are the finest batch seen, of a very good standard and frame. A great improvement has taken place in the drill of the regiment since last inspection. (Signed) A. MACDONELL, Maj.-Gen. 1875. Major-General Macdonell reports:—"The general condition of the 22nd Native Infantry gives evidence of the well-directed efforts which have been incessantly at work to raise its efficiency since 1872–73, when this very same corps, among the various regiments then assembled at Hussun Abdal, was, by common consent, the least conspicuous in all essentials. Writing on this date, and having seen much of the regiment both here and at the camp of instruction at Rawulpindee, I have no hesitation in asserting that, taken altogether, the 22nd Regiment Punjab Native Infantry has placed itself well to the front as one of the best among avowedly good Native corps which distinguish this division. It excels them all in discipline, turn out, and style of drill. . . . From the Assistant Adjutant-General for Musketry I receive the highest eulogy on the interest displayed in the training of the course by all ranks, and the thorough earnestness with which it is carried out."
23rd Native Infantry. Maj. A. A. Currie, Commandant, 1873, 1874, and 1875.	*Class Regiment.* Muzbee Sikhs -	1873. The inspection of the regiment was most gratifying, and on the whole it is in a very satisfactory condition. The care and attention bestowed on the training of all ranks is evidenced by the style, steadiness, precision, and pliability of the men. The officers as a body are exceedingly well up to their work, though none of them are equal to directing the labour of the men in a skilled or scientific manner; in other respects, and taken in the light of an infantry battalion, it is a most useful and soldierlike body of men. (Signed) A. MACDONELL, Maj.-Gen. 1874. Major-General Macdonell says:—"My inspection this year of the 23rd Pioneers has proved to me as satisfactory as that of last year. The favourable points which particularly distinguish this regiment are the very considerable elasticity and correctness of its battalion drill, its freedom of movements, and the very intelligent manner in which the skirmishers move and avail themselves of the cover of ground. Indeed in this respect they far excel any other Native regiment that I have inspected this year." 1875. The inspection of the regiment was very satisfactory in every respect. The European officers are competent in every way, and the Native officers command their companies efficiently. The field exercises were performed with correctness, smartness, and celerity, and all ranks thoroughly understood the duties of skirmishing, outpost, and patrols. The interior economy of the regiment is very good. (Signed) A. MACDONELL, Maj.-Gen.
24th Native Infantry. Col. G. N. Cave, Commandant, 1873. Maj. F. B. Norman, officiating Commandant, 1874 and 1875.	*General Mixture.* Trans - Sutlej Sikhs, Punjabee Mahomedans, Pathans, Hindus, and Dogras.	1873. On the whole very satisfactory. The interior economy and discipline is good, and both European and Native officers understand and perform their duties with zeal and intelligence. More instruction in battalion drill is required, but it is explained that the falling off in this respect is due to the very heavy sickness from which the men suffered in the latter part of 1872. The musketry practice and skirmishing of the regiment is very good, and outpost duty was thoroughly understood by all ranks. (Signed) P. HILL, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
		1874. The regiment is composed of an extremely fine body of men, and the recruits, who are also a fine batch of men, will, if carefully drilled, be a great addition to the corps. The drill of the regiment is not so good as it should be, the chief fault being its pace, which is slower than the regulation pace. The European officers have a fair knowledge of their duties, and the Native officers are a particularly smart and intelligent body of men, taking great interest in their companies. (Signed) R. O. Bright, Brig.-Gen. 1875. The regiment is in a very satisfactory state, and a very marked improvement has taken place since last inspection. The drill of the regiment is perfect. The manual and bayonet exercises were particularly well done, as was also the skirmishing, which is thoroughly understood by all ranks. (Signed) R. O. Bright, Brig.-Gen.
25th Native Infantry. Lt.-Col. H. D. Manning, Commandant, 1873, 1874, and 1875.	*General Mixture.* Punjabee Mahomedans and Sikhs, Punjabee Hindus and Dogras, with a small number of other castes.	1873. A good average corps. Its discipline, instruction, and training are carefully and intelligently supervised by the commanding officer, who is given every support by the officers of the regiment. The Native officers are fairly acquainted with their duties, and are habituated to exercise their companies, and did so on inspection. The recruits enlisted since last inspection were an unusually fine body of men. (Signed) A. Macdonell, Maj.-Gen. 1874. The regiment is composed of a fine body of men, well set up, exceedingly well drilled, and great care appears to have been taken in preserving the discipline of the regiment. The European officers are well instructed and understand their work. The Native officers handled their companies fairly at company drill, but at outpost duty and skirmishing, when thrown upon their own resources, some of them lacked intelligence, and appeared unwilling to act on their own responsibility. (Signed) W. Payn, Brig.-Gen. 1875. The 25th Native Infantry is in a most efficient state, the result of the great pains taken by the British officers in the instruction and training of the men. The interior economy of the corps is all that could be desired. (Signed) Chas. Reid, Maj.-Gen.
26th Native Infantry. Lt.-Col. J. Williamson, Commandant, 1873, 1874, and 1875.	*General Mixture.* Pathans, Punjabee Mussulmen, Dogras, Punjabee Hindus, Sikhs, and a few Hindustanees.	1873. The regiment is in an efficient state. Notwithstanding the unusual sickness, the men were extremely steady on parade, and marched past well. The outpost duty was also well done, and the bayonet, manual, and firing exercises were also well performed. The European officers are all well up in their work and fit for the positions they hold. (Signed) T. F. Wilson, Brig.-Gen. 1874. The regiment appeared to be not quite so steady on parade as it was at last year's inspection. The firing was bad both at the target and with blank ammunition, and there is room for great improvement. The European officers did fairly well on parade, and answered the questions put to them well. The Native officers appear to know their duties. (Signed) T. F. Wilson, Brig.-Gen. 1875. The regiment has much improved in steadiness of drill in the last three months. The defects pointed out at last inspection have been rectified, and the general state of the regiment is satisfactory. The European officers are competent, and render every support to their commanding officer. The Native officers are intelligent and well instructed. (Signed) Chas. Reid, Maj.-Gen.
27th Native Infantry. Lieut.-Col. J. Doran, C.B., Commandant, 1873, 1874, and 1875.	*Class Company.* 3 companies Sikhs. 2 „ Punjabee Mahomedans. 1 company Dogras. 1 „ Pathans. 1 „ Mixed Hindus.	1873. On the whole the regiment is in creditable order, and considering its disadvantages of being broken up into detachments, and the sickness and mortality that have occurred, the regiment performed its several movements fairly. The Native officers are a respectable body of men in general, but there are some who, from ignorance, indolence, use of intoxicating drugs, want of education and natural intelligence, can never ensure respect. The interior economy and discipline of the regiment is good. (Signed) W. Sankey, Brig.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
		1874. This is a fine regiment, and moved well on parade. The Native officers and non-commissioned officers have been well instructed, and understand what is required of them. The British officers all did well, and readily placed the corps in such positions as were pointed out. In musketry the officers answered indifferently. Instructions have been issued on this head. (Signed) T. F. Wilson, Brig.-Gen. 1875. A very well drilled and well set up regiment, that performed the several field movements with correctness and celerity. The European officers generally were not sufficiently well acquainted with the sword exercise; otherwise all replied well to the questions put to them, and did well on parade. The Native officers commanded their companies on parade, and appeared to be well instructed. (Signed) T. F. Wilson, Brig.-Gen.
28th Native Infantry. Col. J. Smith, officiating Commandant, 1873; Commandant, 1874 and 1875.	*General Mixture.* Sikhs, Mussulmans, Dogras, Hindus, and Pathans.	1873. The 28th Native Infantry is composed of a fine body of Native officers, non-commissioned officers, and men. They are remarkably steady under arms and take up the dressing smartly. The different exercises with arms were all very well executed, as also all the battalion formations. The light infantry might be quicker, but in performing these moves it is evident the men have been trained with care and attention. (Signed) W. Sankey, Brig.-Gen. 1874. The 28th Native Infantry is composed of a good body of men. They stand well and steady under arms, and their drill was fairly performed. All the European officers did fairly well. The Native officers commanded their companies well, and answered the questions put to them in a very creditable manner. (Signed) W. Sankey, Brig.-Gen. 1875. The 28th Native Infantry is not in such a satisfactory state as it was two years ago, The march past, and the manual, firing, and bayonet exercises were very fair. The battalion drill was on the whole good, but there was a want of steadiness which requires more attention. The European officers gave satisfaction, but as a rule they are wanting in life and smartness, particularly in light infantry drill. Some of the Native officers are very intelligent and gave very great satisfaction in the manner in which they commanded their companies. (Signed) W. Sankey, Brig.-Gen.
29th Native Infantry. Lieut.-Col. J. J. H. Gordon, Commandant, 1873, 1874, and 1875.	*General Mixture.* Sikhs and Hindus, Punjabee Mahomedans, Pathans and Dogras.	1873. A well-trained and well-disciplined regiment, in a perfectly efficient state. (Signed) T. F. Wilson, Brig.-Gen. 1874. The 29th Native Infantry is in very good order. The target practice was excellent, showing that great attention has been paid to everything connected with musketry. All the officers exercised the regiment, and did well. The Native officers are generally well acquainted with their duties; some are better than others, A few of the recruits appeared rather old. (Signed) T. F. Wilson, Brig.-Gen. 1875. The regiment is in a very satisfactory state. Its drill and instruction is good, and its musketry practice excellent. (Signed) T. F. Wilson, Brig.-Gen.
30th Native Infantry. Lieut.-Col. T. W. R. Boisragon, Commandant, 1873, 1874, and 1875.	*General Mixture.* Sikhs, Punjabee Mahomedans, Dogras and other Hindus, Pathans, and a few Hindustanee Mussulmen and Hindus.	1873. A very efficient regiment. The interior economy is good, and everything gives proof that the commanding officer discharges his command with zeal and ability. (Signed) T. F. Wilson, Brig.-Gen. 1874. The regiment did not appear to be quite so steady under arms as it was at last year's inspection, but both European and Native officers understand their duties. (Signed) T. F. Wilson, Brig.-Gen. 1875. The corps has improved since last inspection; the arms, clothing, accoutrements, &c. are all in good order. The target practice was indifferent, but the regiment has not had the Sniders long. The men, however, drill well, and skirmish in good style, and on the whole the regiment is considered to be in good order. (Signed) T. F. Wilson, Brig.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
31st Native Infantry. Col. H. M. Wilson, Commandant, 1873 and 1874. Col. E. G. Langmore, Commandant, 1875.	*General Mixture.* Sikhs, Punjabee Mahomedans, Pathans and Dogras, a few Punjabee Hindus and Mahomedans and Hindustanee Hindus.	1873. The corps is in an efficient state. The European officers understand their duties, and are intelligent and zealous in the performance of them. The Native officers are a very respectable, diligent, and active body of men, and are also well acquainted with their duties; all movements were done according to regulation without confusion or difficulty. (Signed) P. Hill, Maj.-Gen. 1874. The regiment is in a very efficient state. The officers are well acquainted with their duties, and the Native officers are smart, intelligent, and well acquainted with their several duties, and quite competent to perform them. (Signed) Chas. Reid, Maj.-Gen. 1875. A remarkably well drilled regiment. The men are very steady under arms, and have a soldierlike appearance. The Native officers are good drills, and the non-commissioned officers are smart and intelligent. The regiment altogether is in a very efficient state, and praise is due to the European and Native officers generally. (Signed) Chas. Reid, Maj.-Gen.
32nd Native Infantry. Col. W. D. Morgan, Commandant, 1873, 1874, and 1875.	*Class Regiment.* Muzbee Corps -	Major-General Tytler reports:—"This regiment cannot be said to be a fine one. The men at present appear to be incapable of great or prolonged exertion, and their running drill was badly performed, though the distance run was only 400 yards, instead of 800, as laid down for a Native regiment. I have, however, an idea that, all things considered, it would prove itself a good service regiment. The men are steady and willing, and Colonel Morgan, their commanding officer, exercises a strong influence over them. The regiment performs its outpost duties very fairly; also shelter-trench exercise." 1874. *Note.*—Was not inspected in 1874, being umployed in the famine districts. 1875. On the whole satisfactory. The march past, manual, firing, and bayonet exercises were fairly done. The battalion movements were also satisfactorily performed, but there was a tendency to crowding in the ranks. The European officers are fairly conversant with their duties. The Native officers turned out well, and in all ordinary duties appear quite qualified, but none were competent to drill a battalion. The regiment is very well suited to the duties it is generally called upon to perform, and moreover would not be found deficient in the duties required of it when brigaded with other troops. (Signed) P. Hill, Maj.-Gen.
33rd Native Infantry. Lieut.-Col. E. H. Langmore, Commandant, 1873. Col. J. G. Gowan, officiating Commandant, 1874. Lieut.-Col. J. T. Harris, officiating Commandant, 1875.	*Class Company.* 1 company Hindustanee Mussulmen. 3 companies Aheers. 1 company Passees. 1 company Hindus of low caste. 1 company all races and castes. 1 company Rajpoots if Chumars cannot be had.	1873. Generally satisfactory. The European officers are well instructed, understand their duties, and are zealous in the performance of them. The Native officers are a respectable, active body of men, well acquainted with their duties. The field exercises were performed with steadiness and correctness, but very slow. The regiment appeared to be well instructed in outpost duties, picquet, mounting, &c. (Signed) W. J. Ingall, Brig.-Gen. 1874. The general efficiency of the regiment is satisfactory and creditable to the commanding and other officers, who have had unusual difficulties to contend with, owing to the heavy guard and other duties which have fallen on the regiment. The field exercises and movements were executed with precision and steadiness, very creditable to the regiment. The Native officers, non-commissioned officers and men showed very fair intelligence and energy. (Signed) J. Brind, Maj.-Gen. 1875. The general condition of the regiment is fairly satisfactory. The drill of the men was steadily performed, but the pace might have been more brisk, and a smartness is wanting in he manual, firing, and bayonet exercises. The Subadar Major and the second senior Native officer acquitted themselves creditably. The others were fairly up to standard. (Signed) A. E. Hardinge, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
34th Native Infantry. Col. R. P. Anderson, Commandant, 1873, 1874, and 1875.	*Class Company.* 1 company Brahmins and Rajpoots. 1 company Aheers. 1 „ Lodhs and Kachees. 1 company Dhanooks and Passees. 1 company Chumars. 1 „ Mehters. 1 „ Hindus of low caste. 1 company all races and castes.	1873. A well drilled and well set up body of men, whose conduct has been exemplary during the past year. The Native officers are quite competent, and thoroughly know their drill, and exercised their companies in a smart and satisfactory manner. (Signed) R. O. Bright, Brig.-Gen. 1874. The appearance of the regiment on parade presented a most marked improvement and left nothing to be desired. The men turned out smartly and cleanly dressed, and were very steady and stood well under arms. The European officers understand their duties, and are intelligent and zealous. The Native officers drilled their companies smartly and correctly, and have a very good knowledge of outpost duties. (Signed) R. O. Bright, Brig.-Gen. 1875. Sir J. Brind reports—"I consider the 34th Native Infantry a capital specimen of a low-caste regiment . . . . . Throughout all ranks, cheerful and intelligent discharge of duty, contentment and brotherly feeling towards one another, combined with respect for superior authority, is conspicuous . . . . . All the European officers drilled the regiment in one or more exercises, and showed intelligence and good instruction. In outpost duty, they and the Native officers evinced alertness and appreciation of active service requirements. The regiment, in its officers, non-commissioned officers, and privates, performed all parade work with pride and success. Interior economy receives full attention, the lines are well ordered, and discipline most creditable, and would, I believe, bear favourable comparison with the best in the army."
35th Native Infantry. Col. J. L. Nation, Commandant, 1873 and 1874. Lieut.-Col. G. A. Brown, officiating Commandant, 1875.	*Class Company.* 2 companies Aheers. 2 „ Lodhs. 1 company Dhanooks. 2 companies Chumars. 1 company Mehters.	1873. The regiment in all respects is in an efficient state. The manual, firing, and bayonet exercises were well and accurately performed. The men drilled well and steadily. The Native officers were well up to their work and quite able to command their companies. More instruction is, however, required in the musketry instruction of the regiment. (Signed) W. J. Ingall, Brig.-Gen. 1874. Major-General Brind reports—"I have the satisfaction of bringing to the notice of his Excellency the Commander-in-Chief the conspicuous improvement that has been effected in this formerly unfavourably reported regiment, which has been of a steady and general character . . . . . The appearance and bearing of this regiment is excellent, their uniform and appointment so very clean and well fitted. In all the drills and exercises the success of the regiment was great, so that it is difficult to particularize European and Native officers. Indeed all ranks seemed to work with one mind and to be prompted by a determination to merit a favourable report." 1875. The general state of the regiment is most satisfactory. All the British and Native officers drilled the regiment satisfactorily, though differing in excellence. In outpost duty the Native officers evinced ability to appreciate the work and spirit that would be required from them on active service, and the non-commissioned officers gave evidence of having been well selected. The interior economy of the regiment is on a very satisfactory footing in all departments. (Signed) J. Brind, Maj.-Gen.
36th Native Infantry. Lieut.-Col. A. Pond, officiating Commandant, 1873 and 1874. Col. P. G. Scot, Commandant, 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 1 company Jats. 2 companies Aheers. 2 „ Koormees. 1 company all races and castes.	1873. Very unsatisfactory. The whole marching is slack, and there is a want of intelligence and smartness throughout the whole corps, several Native officers included. The men are not well drilled, nor are they well set up, and the movements are performed with sluggishness. Neither has the regiment been properly instructed in outpost and patrol duties and guard mounting. (Signed) J. Travers, Maj.-Gen. 1874. The condition of the regiment, if not wholly satisfactory, promises amendment from the care and attention bestowed on it by Lieutenant Colonel Pond. The two companies at Futtehgurh under the command of Major Hunter were much below the regimental average, and the Native officers with these companies displayed much incompetency, but the other Native officers appeared competent. The European officers are favourably reported on. The musketry training of the men has not been good, but it is improving. (Signed) A. E. Hardinge, Maj.-Gen.

Regiments,	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
		1875. Fairly satisfactory. The men are well set up and fairly drilled, and the interior economy of the regiment is well regulated. (Signed) A. E. HARDINGE, Maj.-Gen.
37th Native Infantry. Colonel C. F. G. Lamb, officiating Commandant, 1873 and 1874. Lieut.-Col. A. A. officiating Commandant, 1875.	*Class Company.* 1 company Brahmins and Rajpoots. 1 company Hindustanee Musselmen. 1 company Jats. 1 „ Aheers. 1 „ Koormees. 2 companies Goojurs. 1 „ Punjabee Musselmen, Pathans, Sikhs, and Dogras.	1873. The general efficiency of the regiment is very satisfactory, and Col. Lamb deserves much credit for the care and trouble he has taken in rendering the regiment so efficient. The commanding officer is zealously assisted by the officers of the regiment. The Native officers are very well instructed, and are an intelligent, respectable body of men. (Signed) W. SANKEY, Brig.-Gen. 1874. A very favourable report. The European officers gave every satisfaction, and the Native officers acquitted themselves well, showing that much care has been given to their instruction. All the movements were very well and creditably executed. (Signed) W. SANKEY, Brig.-Gen. 1875. The regiment is in a satisfactory state. The men are well drilled and set up, and went through the manual, firing, and bayonet exercises very satisfactorily. The European officers gave every satisfaction in the manner in which they drilled the battalion, and the Native officers showed that great care had been taken with their instruction. The outpost duty was thoroughly understood by all ranks. (Signed) W. SANKEY, Brig.-Gen.
38th Native Infantry. Col. A. Bagot, Commandant, 1873 and 1874. Lieut.-Col. H. W. Hodgson, officiating Commandant, 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 2 companies Jats. 2 „ Aheers. 1 company Koormees. 1 „ all races and castes.	1873. No inspection. 1874. The European and Native officers are fairly acquainted their duties. The non-commissioned officers are fairly instructed. The soldiers generally are fairly drilled, and the movements were very fairly performed. The recruits are not a particularly fine set. (Signed) W. J. F. STAFFORD, Brig.-Gen. 1875. A very favourable report. Great care has been taken by the officers in the training of the men and in the general economy of the regiment. The men were very steady on parade and executed the movements at light infantry drill with tact and judgment, and were quick and intelligent at outpost duty. The defects noticed at last inspection have been remedied. (Signed) G. A. St. P. FOOKS, Col. 3rd N.I.
39th Native Infantry. Maj. H. M. Wemyss, officiating Commandant, 1873 and 1874. Col. G. W. Fraser, Commandant, 1875.	*Class Company.* 1 company Brahmins and Rajpoots. 1 company Jats. 1 „ Goorkhas and Hillmen. 1 company Aheers. 1 „ Chumars and Mehters. 1 company low-caste Hindoos. 1 company Sikhs. 1 „ Khuteeks.	1873. The state of the regiment in general is highly satisfactory, shewing that great care and attention has been bestowed upon it. The performance of the manual and firing exercises and the bayonet exercise was very good. The battalion drill was steady and good, and the Native officers showed a good knowledge of their work. There is a marked improvement in everything connected with the drill of the regiment, and more especially in outpost duties. (Signed) R. O. BRIGHT, Brig.-Gen. 1874. Only two companies turned out for inspection, owing to the regiment being broken up into detachments, and a considerable number of men being in hospital. Under these circumstances the performance of drill, &c., was fairly good. Both European and Native officers are acquainted with their duties. (Signed) W. SANKEY, Brig.-Gen. 1875. The regiment is in good and efficient order. The men turned out clean on parade with their arms and accoutrements in good order. The manual and firing exercises were very fair, as also the bayonet exercise. The march past and several battalion movements were satisfactorily performed. The Light Infantry drill, though good, requires more practice; the outpost duty was thoroughly understood by all ranks. (Signed) W. SANKEY, Brig.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
40th Native Infantry. Lieut.-Col. E. Dandridge, Commandant, 1873. Lieut.-Col. E. H. Scott, officiating Commandant, 1874. Lieut.-Col. E. Dandridge, Commandant, 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 3 companies Aheers. 1 company low-caste Hindoos. 1 company Sikhs. 1 „ all races and castes.	1873. Major-Gen. Hill reports :—"I have never seen a regiment in better order in all respects than the 40th Native Infantry; the men are not so large as those of a Punjabee regiment, but are admirably smart and active soldiers. They are so well turned out that the eye is attracted at once by their appearance. The manual, firing, and bayonet exercises well done; their marching perfectly correct, as is proved and tested by the steadiness of their advance in line. The movements are all strictly regulation and well performed. The skirmishing is rapid and effective, and all movements performed under command of Lieut.-Col. Dandridge have point and reason in them. All ranks are very well instructed in outpost duty, and the manner in which it is performed shows that the men and Native officers have profited by the lessons of last year's camp of exercise. The shelter-trench exercise was extremely well done, men working according to order." 1874. The regiment is very efficient and in very good hands. All the officers understand their duties well. The Native officers are very smart and well acquainted with their duties; they drilled the companies very well indeed. (Signed) Chas. Reid, Maj.-Gen. 1875. The regiment drills remarkably well, and the men are well set up and soldierlike in appearanec. The Native officers are well instructed and drill their companies well. Taken altogether the regiment is in a very high state of efficiency. (Signed) Chas. Reid, Maj.-Gen.
41st Native Infantry. Lieut.-Col. T. Taylor, officiating Commandant, 1873. Col. H. S. Obbard, Commandant, 1874 and 1875.	*Class Company.* 2 companies Brahmins and Rajpoots. 1 company Hindustanee Mussulmen. 2 companies Jats. 1 company Goorkhas and Hillmen. 1 company Goojurs. 1 company Dogras and Hillmen.	1873. The regiment is decidedly in a very efficient state. Its drill, discipline, and interior economy are good, and both officers and men are well instructed, the former rendering every support to their commanding officer. (Signed) W. J. F. Stafford, Brig.-Gen. 1874. The regiment is in a very efficient state, and has a workmanlike look about it. The drill and exercises were performed in a satisfactory manner. (Signed) W. Olpherts, Brig.-Gen. 1875. The 41st Native infantry is in a still more efficient state than it was at the last inspection. Though its march past is not quite steady, yet it excels in outpost duty and skirmishing, and promises to be a fine regiment, and ready for any service that it may be called upon to perform. (Signed) W. Olpherts, Brig.-Gen.
42nd Native Infantry. Col. T. Rattray, Commandant, 1873. Lieut.-Col. J. P. Sheriff, Commandant, 1874 and 1875.	Assam Regiment— *Class Company.* 2 companies of Punjabees. 2 „ Hindustanees. 3 „ Goorkhas. 1 „ Jharwahs.	1873. The regiment is in a satisfactory state. The men were very steady under arms and performed all movements correctly, and according to regulations. (Signed) W. J. F. Stafford, Brig.-Gen. 1874. The regiment is in an efficient state. (Signed) W. J. F. Stafford, Brig.-Gen. 1875. Unsatisfactory. The drill and interior economy of the regiment is good, and the Native officers and men did exceedingly well, but the European officers, with one exception, proved themselves very indifferently acquainted with their duties; in fact they may be said to be ignorant of them. (Signed) W. J. F. Stafford, Brig.-Gen.
43rd Native Infantry. Maj. C. D. S. Clarke, officiating Commandant, 1873; Commandant, 1874 and 1875.	Assam Regiment— *General Mixture.* Goorkhas, Jharwahs, Hindustanee Mussulmen and Hindus.	1873. The regiment is in an efficient state. The men drilled well, and were very steady under arms. (Signed) W. J. F. Stafford, Brig.-Gen. 1874. The British officers appear to have been properly instructed, and to understand their duties. The Native officers are fairly acquainted with their duties. The men drilled very well under the commanding officer, but were not so steady when the other officers manœuvred the regiment. (Signed) W. J. F. Stafford, Brig.-Gen. 1875. The regiment is in good order. All the European officers are qualified for their respective appointments, but some of the Native officers are rather deficient in their drill. The field exercises, and skirmishing and outpost duty were fairly performed. (Signed) W. J. F. Stafford, Brig.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
44th Native Infantry. Lieut.-Col. J. M. Nuttall, officiating Commandant, 1873. Maj. A. Cory, officiating Commandant, 1874. Lieut.-Col. J. M. Nuttall, Commandant, 1875.	Assam Regiment— *General Mixture.* Goorkhas, Jharwahs, and Hindustanees.	1873. The regimeut is in a satisfactory state, and the men, though drilling fairly, have improved in this respect. (Signed) W. J. F. Stafford, Brig. Gen. 1874. The British officers are fairly acquainted with their duties, but most of the Native officers did not seem well acquainted with their duties. The non-commissioned officers appeared fairly instructed, and the movements were fairly performed. The regiment has, however, laboured under great disadvantages in consequence of its having been broken up into detachments along the frontier. (Signed) W. J. F. Stafford, Brig.-Gen. 1875. Not inspected. The regiment was employed on service in the Naga Hills.
45th Native Infantry. Col. C. B. Basden, Commandant, 1873. Maj. F. M. Armstrong, officiating Commandant, 1874 and 1875.	*Class Regiment.* Rattray's Sikhs -	1873. The regiment appeared to be in very good order, and to be imbued with a very loyal and soldierlike spirit; and great credit is due to the European officers for the present condition of the corps. (Signed) W. Olpherts, Brig.-Gen. 1874. Brigadier General Olpherts says,—"This fine regiment has fully maintained its high reputation during the past year under the command of Major Armstrong. . . . I have, therefore, much pleasure in repeating what I said last year, that the 45th (Rattray's Sikhs), is in excellent order, and that there is no finer Native corps in the service." 1875. A most highly satisfactory report. The regiment is composed of a remarkably fine body of men, well set up, and steady under arms. The brigade, battalion, and light infantry drills were well performed. Both European and Native officers acquitted themselves well, and showed that they were thoroughly competent to command the regiment on parade. (Signed) W. A. Armstrong, Col.
1st Goorkhas. Lieut.-Col. J. S. Rawlins, Commandant, 1873, 1874, and 1875.	Goorkhas - -	1873. The regiment has improved in physique since last inspection, and the men are well trained, and drill well; the European and Native officers are well acquainted with their duties, and are zealous in the performance of them. The discipline and interior economy of the regiment is good. (Signed) P. Hill, Maj.-Gen. 1874. A very efficient regiment. Both European and Native officers are able, and take a great interest in their duties. (Signed) Chas. Reid, Maj.-Gen. 1875. This regiment is in excellent order. The men are well set up, well instructed in every respect, and remarkably steady under arms, and take an unusual pride in their profession. The European officers are remarkably zealous, work harmoniously together, and take much pride in everything connected with the regiment. The Native officers commanded their companies efficiently. Some of them are old and obese. (Signed) D. M. Stewart, Maj.-Gen.
2nd Goorkhas. Col. H. T. Macpherson, C.B., V.C., Commandant, 1873. Lt.-Col. D. Macintyre, V.C., officiating Commandant, 1874. Col. H. T. Macpherson, C.B., V.C., Commandant, 1875.	Goorkhas - -	1873. This regiment continues in the same very satisfactory state as mentioned in previous reports. The men are well set up, well drilled, and steady under arms. In the field manœuvres both officers and men displayed careful training, promptness, and intelligence. (Signed) J. Travers, Maj.-Gen. 1874. The regiment was soldierlike, steady under arms, and clean. The exercises were very fairly performed, but the march past was only moderately good. The European officers acquitted themselves creditably, and the Native officers seemed well acquainted with the interior economy of their companies. (Signed) A. E. Hardinge, Maj.-Gen. 1875. An unfavourable report. The drill and instruction of the corps is not good. Many defects were noticed, and more care and attention is required. The European officers are fairly efficient in their duties, but a want of instruction is noticed. (Signed) A. E. Hardinge, Maj.-Gen.

Regiments.	Composition.	Abstracts from Reports of 1873, 1874, and 1875.
3rd Goorkhas. Lt.-Col. A. Paterson, officiating Commandant, 1873. Commandant, 1874 and 1875.	Goorkhas - -	1873. The general state and discipline of this regiment is decidedly good. Everything is to be said in its favour, and nothing against. The only drawback is its isolated position, which affords it little opportunity for being brigaded with other troops. (Signed) W. Olpherts, Brig.-Gen. 1874. The regiment is a thoroughly contented and loyal corps. The men move steadily on parade, and executed light infantry movements and outpost duty very fairly. The exercises of arms and musketry practice were excellent. As a body, the European officers are well instructed and understand their duties. The Native officers are of the usual stamp, but as a body are too old. In physique the regiment is below that of other Goorkha regiments, but every endeavour is being made to raise the standard. (Signed) T. Wright, Brig.-Gen. 1875. The regiment paraded for inspection in good order. The men were well set up and steady under arms, and, considering the nature of the ground, their movements in battalion and light infantry drill were well executed, particularly the latter, and though in stature they are much below the average, the men are active and are well adapted for the service. The European and Native officers acquitted themselves well, both in battalion and company drill. The interior economy of the regiment is satisfactory in every respect. (Signed) W. A. Armstrong, Col.
4th Goorkhas. Lt.-Col. J. A. Tytler, C.B., V.C., Commandant, 1873. Maj. F. F. Rowcroft, officiating Commandant, 1874. Lt.-Col. J. P. Turton, officiating Commandant, 1875.	Goorkhas - -	1873. This regiment still maintains its high character for efficiency and smartness. (Signed) P. Hill, Maj.-Gen. 1874. A remarkably fine Goorkha regiment. The men are well set up and steady under arms, and in a highly efficient state. (Signed) Chas. Reid, Maj.-Gen. 1875. The state of this regiment is altogether very satisfactory. The men are very soldierlike, smart, and steady under arms. They have been well trained, and went through all their drills and exercises with a degree of smartness which is unusual in a Native regiment. Their running drill was especially good, and in the shelter-trench drill they handled their tools in a workmanlike manner. The European officers acquitted themselves most satisfactorily. They have all been well instructed, and as a rule are well acquainted with their duties, both in theory and practice. The Native officers drilled their companies accurately and with considerable spirit. They have been well instructed, and seem to have much self-reliance. (Signed) D. M. Stewart, Maj-.Gen.

Appendix T.

Notes on the Native Army of Bengal; its Present Material and Organization, as compared with the Past.

Most of the existing regiments of the Native army of Bengal, cavalry and infantry, differ from those that mutinied in 1857, in two important respects:

1st. In the complement of British officers and the system of command and regimental administration.

2nd. In the composition or nationality of the rank and file.

The following remarks are made more especially with reference to the infantry, but they apply equally in principle to the cavalry.

The difference in the complement of British officers and regimental administration involves the change from the regular to the irregular system, with the result that, under the latter, seven officers, each with a distinct charge and responsibility, efficiently fulfil the duties which, under the former, engaged two or three times that number without interest and without success.

It is argued that the irregular system has failed on service for want of officers. Notwithstanding all that has been said to that effect, I am not aware of a single authentic instance, during the Mutiny or since, where a good Punjab regiment was unable to do its duty on this account; and I maintain that it has not failed; and that it is capable of standing the strain of any test short of a European war, to which it is not likely to be subjected, and to which the addition of a few extra subalterns would make it as equal as any regiment under the regular system.

The advantages of the irregular system are, that it provides enough and not too many British officers for the work required of them; keeps them constantly before their men; and developes the intelligence, authority, and character of the Native officers, who should constitute the back-

bone of a Native corps, and without whom there can be no reliable connecting link between the British officers and the men.

The present organization of a Native regiment appears to me admirable in all essential respects.

Should we further Prussianise our drill book, it may be found advisable to substitute for the two mounted wing subalterns four captains or subalterns on foot, without interfering with the Native officers; but beyond this any change would I think be for the worse.

I should equally deprecate any reduction of the existing number of companies, or interference with the numbers of the Native and non-commissioned officers. A regiment as now constituted possesses great elasticity and power of expansion.

It could at once be recruited from 600 to 800, or even 1,000 privates, without greatly overtaxing the means of supervision; and a half battalion of a corps thus augmented would of itself be a very complete tactical unit.

One of the essentials of the regular system is, that there shall be a British officer or more to every company. Should that officer be wanting, the company is useless, for the Native officer, having no real functions as such, is unfit to command it.

Under the irregular system, as long as there remain three officers with a regiment, one to command it and the others to direct the two half battalions, there is no absolute break in the chain of responsibility, and the machine continues to work. The Native officer can moreover be replaced as fast as he is wanted. Not so the British officer; and the system that is most dependent on the latter is in my opinion the soonest likely to break down. The key note of my observations and my belief is, that you cannot have a good Native regiment without good Native officers, and that you cannot have good Native officers if you deprive them of the command of their companies.

Another strong argument against the irregular system is, that it demands selected officers, and that there is no longer a field for selection. I am not quite sure that the system, *as long as it was worked in its integrity*, did not make the officers just as much as the officers made the system. However, admitting this argument, and also that regiments composed of certain classes do not produce Native officers worthy of the name, I say let such regiments be officered on the regular system and leave the others as they are.

A return to the regular system, throughout, would mean simply the revival of the old Bengal army. I maintain that there is little in the history of that army to justify such a step. The records of the last 30 years of its existence are not devoid of glory, but disaffection and misbehaviour disfigure every page of it, more or less.

In an able article on the subject of "Our Sepoy Army," a contributor to Colburn's U.S. Magazine (January and February 1870), an advocate of the old system, and apparently an officer who served with Hindustanis at the defence of Lucknow, where he saw them to the best advantage, says of the Natives of India, as soldiers: "When on service, unless well led and backed up "in the ranks by Englishmen, they are in truth but little better than cowards; we particularly "allude to the battles of Ferozeshah, Aliwal, and Subraon, where it required the prominent "example and active encouragement of some 15 or 16 English officers and two sergeants to get "the Native regiments to advance in face of the Sikh Artillery."

Speaking of Native officers, he again tells us—"*Leading*, in the mind of an Asiatic, means "remaining in the rear (if possible under cover) and roaring out 'chullo baie' (go on, "brother)."

Such are the reminiscences of the regular system, and such the faith and feeling thereby engendered between officers and men.

On the other hand, what has the irregular system done for us?

In the time of our direst need, (besides many others of equal note, but which suffered less), it gave us regiments like the 2nd Goorkhas, the Guide Corps, the 1st, 2nd, and 4th Punjab Infantry, that fought at Delhi and Lucknow till more than half their numbers were killed or wounded; and in some cases, when all the British officers were put hors-de-combat, continued to fight under their Native officers, following the lead of any Englishman who might be temporarily attached to them.

This may prove too much; but the spectacle of 16 British officers and two sergeants in vain exhorting a regiment to advance is surely worse than that of a regiment going on fighting without any officers at all.

It may moreover be said that the different pictures represent different races. This is true; but I believe that the Hindustani sepoy of the last century, when he was to all intents and purposes an irregular, and recruited from a fighting class, was little inferior to the Punjabee of 1857 in courage, endurance, or good will; and that his deterioration dates from the time when we put a shako on his head as a symbol of reform, and gave him the Articles of War instead of a good commanding officer as his friend and guide.

I have already remarked that the present *organization* of a Native regiment appears to me admirable in all essential respects. I am very far from saying the same of the present *system*, which is not the irregular system in its integrity, as I will hereafter endeavour to show. By organization I now mean the complement of the different ranks. I object to more British officers, because I think there is not room or work for more unless they supplant and displace the Native officers; and even then a large body of English gentlemen, of good education and high aspirations, cannot find sufficient outlet for their energies as captains and subalterns of small companies. The consequence is professional weariness and disgust on their part, and on the part of the men the discovery that their officers are nonentities.

The commanding officer of a Native regiment should be at once a fountain of hope and a rod of affliction to his men.

With an Asiatic soldier personal influence is the beginning and the end of all power.

Of what avail would be the personal influence of a Chamberlain, Nicholson, Coke, or Lumsden,

when filtered through some fifteen or sixteen officers, under the forms and ceremonies of the regular system?

There were doubtless a certain number of very good regiments among the old Bengal Native infantry, commanded and made so at different times by men of exceptional force of character, who kicked over the stumbling blocks in their way, and with the assistance of a good adjutant exercised a vigorous and wholesome rule, while the rest of the officers played billiards and signed the muster rolls.

The same system would again be attended with the same results, which is perhaps one argument in its favour.

If, as is often asserted, a Native regiment with six or seven officers is not efficient, according to the ambitious standard of the present day, when as much is expected from it as from a British regiment, I say, reduce the standard and expect less. It is infinitely wiser and safer to sacrifice its accomplishments rather than its morale. And its morale, I repeat, is dependent upon good Native officers and a despotic commandant, conditions which a multitude of British officers will not admit.

In appearance and drill, indeed in all soldierlike qualities, a great many of our Native regiments are fit to take their place with credit to-morrow in any camp of exercise in Europe; but a campaign, even on their own soil, of any magnitude or duration, would soon see us through our small numbers of those highly trained men, when we should have to fall back, as we did in 1857, on mere recruits; and the system that will assimilate, and turn to the best account in the shortest period, the hasty levies of such warlike times, is the system we require, and that is the irregular system.

I have to explain my remark that the system now in force is not the irregular system in its integrity, which it is my object to uphold.

That system received its death blow in 1869, by the repeal of Article III. of Act V. of 1861 (which merely confirmed the powers exercised by commanding officers since 1857), and unless that article is restored, the decay of the present army, by the same process as the last one, is a mere question of time.

In 1871, when commanding my regiment, I had occasion to write on this subject, and I cannot do better than repeat my words, which after four years' experience as a general officer I can still endorse:—

"With regard to the power possessed by commanding officers during the twelve years succeeding the mutiny of reducing incompetent non-commissioned officers and discharging worthless men, I unhesitatingly assert that the measure abolishing that power was a most injurious one to the Native army, and calculated to encourage a relapse into the spirit of laxity and indifference to its officers, which gave the first warnings of the events of 1857.

"A man may be a notoriously bad character, a chronic and corrupting nuisance in a regiment, but until he is entitled to a handsome pension, or commits some offence for which he can be tried and a conviction obtained which survives the obstacles and technicalities of the law and the usual appeal to higher authority, a commanding officer cannot get rid of him; his tares and his wheat must grow up together till both are cast into the fire.

"Amongst this rapidly increasing class may be mentioned:—

"1. Ill-conditioned and disloyal men, who may be known as ringleaders and spokesmen on every occasion that some fancied right or grievance crops up for discussion representatives of the 'Punch,' the canker that destroyed the Sikh army and rule; lawyers whom the law cannot touch.

"2. Gamblers, debauchees, and even worse, who may swindle and demoralise half a regiment before evidence can be found against them to satisfy a judge advocate.

"3. Malingerers, and men who destroy themselves with drugs; who never did a fair day's work, and who look forward to an early pension.

"Men who, in a regiment that has seen service, may be a scoff and a byeword for their want of courage or enduranee, and yet who are good soldiers according to the law.

"As I have before stated, such characters, until 1869, were summarily discharged, without any great hardship to themselves, and to the incalculable benefit of the tone and spirit of a regiment which they troubled. Under the new system, or rather the old one, which culminated in the mutiny, and to which, in our passion for centralization, we have returned, they may soon become a mischievous party and power; for whereas large numbers of good men, particularly in Punjab regiments, take their discharge after four or five years' service, and return to agricultural pursuits, the bad ones hang on, preferring service in the vicinity of cities, with its opportunities for vice, to honest labour."

The sepoy enlists for three years, but family affairs, such as the death of a father or brother, throwing land and property or a houseful of unprotected women and children on his care, often compel him to ask for his discharge within that term, when to insist on his fulfilling his obligation would be cruel, and he is accordingly released from service.

On the other hand, we bind ourselves to the sepoy indefinitely, and as I have described, keep in our pay as long as it suits him a man who may be utterly worthless as a soldier, who, if he chose to work could get a better livelihood in civil life, and to whom a discharge would be no loss whatever beyond that of a prospective right to a pension, which he does not deserve.

From my experience of officers, and especially commanding officers of Native regiments, I venture to affirm that they are as a rule more prone to the "laisser-aller" spirit, and to err on the side of mercy than of undue harshness towards their men. Should the protection of the Native soldier, by the repeal of Article III. of Act V. of 1861, have been rendered necessary by the exceptions to this rule, I am of opinion that it has been afforded at a most ruinous sacrifice of the efficiency and discipline of the Native army; and that if these exceptions had been deprived of their command, instead of the whole body of commanding officers of their powers, the result would have been happier both for the Native soldier and for the State.

The recent measures for the admission of young men of good family into the commissioned grades of the Native army ought to have the best results, but the experiment in old regiments should be carried out very gradually and with much caution.

The present status of our Native officers of infantry, especially, is not such as to invite really good men of this description into their ranks; and it would be dangerous and impolitic for the sake of doubtful ones to dishearten the many that are to be found in well recruited corps, who are thoroughly fitted for the position, who value it, and who serve with the sole ambition of attaining it.

To raise the condition and character of the Native officer, and to make his position such as to identify his interests with our own, and to ensure his loyalty in the day of trial, the present scale of pay and rewards open to him should be increased and graduated upwards so as to suit the widely differing classes to whom we give commissions.

As it now is, the well-bred, high spirited, and influential scion of some more or less distinguished family, whose presence in a regiment is of inestimable value, may be found serving in the same rank and on the same pay as the meanest Hindoo, whose only recommendation may be a little reading and writing, and the sort of smartness which is attractive on the parade ground, but of no use in the field. The latter is well provided for, but to meet such cases as the former there is much need of some liberal scale or system of personal allowances and other considerations, ascending according to the family status, rank, merits or services of the individual. The prizes of the service are too few. There are many Native officers, covered with wounds, who, by their gallantry during the mutiny at Ambeyla, and elsewhere, having achieved all the honours and rewards open to them, are now serving without the hope of anything further, a state of affairs which cannot be conducive to healthy feeling.

More frequent grants of land, civil titles, and seats at durbars, &c., should be among the advantages held out to such men.

All this cannot be done without increased expenditure. If corresponding retrenchments are absolutely necessary, I would say disband a certain number of regiments, but do not mar the efficiency of those you retain by further reductions in any grade whatsoever.

The sufficiency or otherwise of the pay of a sepoy in our service at the present day is a question of immediate importance, and one that we should do well to anticipate and decide with a good grace, instead of waiting till it is forced upon us.

It is as dangerous to pamper as to starve a mercenary.

In this light there are some who think that we prepared the way to the events of 1857 by over indulging the sepoy, and that every concession to the Native soldier is fraught with peril as likely to establish a precedent or to grow into a right.

Lest this readily accepted argument be put forward as an objection to the much needed increase of his present pay, I would point out that a comparison between the circumstances of the old Bengal sepoy and the sepoy of to-day will show that we have fully profited by past lessons, and the balance of advantages will be found so largely in favour of the former (considering the rise during the last ten years in the cost of the necessaries and luxuries of life and in the value of labour,) that we need entertain no fear of any tendency as yet to do more for the latter than is absolutely indispensable to keep him in our ranks.

The sepoy enlisted since 1857 has no knowledge of Scinde or marching batta. His immediate rights for the first six years of his service consist of Rupees 7 per month as pay, free carriage of ten seers of baggage when he moves on the public service, and $1\frac{1}{8}$ yard of red or drab shoddy, with some buttons and thread, every year, to make him alternately a short coat or a tight trowser; the sole item of clothing or equipment he receives from Government.

Besides keeping himself in athletic condition, on the income of a down country "kitmutgar" he is expected to pay for and maintain an elaborate kit, little inferior to that of the British soldier, and to take his place alongside of the latter with equal pride in his appearance and devotion to his duty. It can of course be argued that as long as we get recruits the inducement must be sufficient. In reply to this I would say, that though we may fill our regiments, it is, or soon will be with an inferior class of men, or that portion of the better or fighting class only which a love of adventure or boyish dislike of the plough will not allow to remain at home, a class which it is clearly our interest to draw into our service, but which we must pay, at least according to the ordinary labour market of the day. The Punjab corps are, I believe, entirely indebted for their recruits to the military spirit of the country, and to the liberality of our pension rules. Whether these motives to service are as wholesome, safe, and economical as immediate pecuniary inducements is the problem before us.

There is a difference between our old sepoy army and the Punjabee portion of the present one which is likely to affect the pension list very materially.

The former was composed chiefly of Brahmins and Rajpoots, whose caste prejudices did not encourage them to follow the plough if they could avoid it. The latter is or should be recruited from the purely agricultural classes, the yeomanry of the country who represent its fighting population.

The result of this difference shows itself as follows, that whereas the Hindoostani, having once enlisted, hung on to his regiment long after he was unfit for service—his pension of itself being unequal to his wants, and there being few other means open to him of adding to his income,—the Punjabee, unless he has been fortunate in promotion, is ready to go the day he is entitled to do so. His pension pays the rent of his farm, which is an ample provision for him, and he falls back in the prime of life on the existence most congenial to him.

Considering the great reductions that have taken place in the Native army, and the obvious necessity of having every man with the colours in a state of the highest efficiency, it would be a grievous mistake to attempt to check in any way the tendency I have just noticed; but I think we are throwing away our money and our resources in not retaining some lien on the services of the hundreds of fine men who are every year drafted into the pension establishment.

If every soldier who was invalided after fifteen years' service was liable, say for ten years

longer, that is, until he had completed five and twenty years from his first enlistment, to undergo a month's drill at the head-quarters of his district or division, receiving during that period his old rate of pay, and to be called upon, in case of emergency, for such duty and service as he was able to perform, we should have a reserve force at our disposal of a very useful quality, at a cost, during peace time, of about Rupees 5 per annum for each sepoy, exclusive, of course, of the incidental expenses of the centres or depôts where the materials for arming, clothing, and mobilising such a force would be deposited, and its annual training carried out.

The details of a scheme of this sort need not be very difficult, and it could be made to embrace as large or as small a number of men as were wanted, by some suitable system of medical examination.

It is related of a retired or invalided Sikh Native officer of Coke's regiment, who had been got rid of as rather a troublesome character, that, being at his home in 1857, and hearing of the mutinies, he determined to rejoin his old corps, then on its way to Delhi. Colonel Coke found him waiting on the road, somewhere near Loodiana, with two tulwars at his side. On being asked to account for his appearance, he replied that he had come to command his former company, and had brought two swords, one to break in the service of the "Sirkar," and the other on his own account, in satisfaction of some ancient grudge against the Hindustanis. He was allowed to assume his old position, and was badly wounded very early in the siege.

Having recovered, he was present at the final assault. His company fell in that morning at the head of the column, much to his delight; but, owing to certain evolutions between the camp and the walls of the city, lost its place for a time. He rushed up to the younger Nicholson, who was in command, and loudly demanded that the previous order of the companies should be restored, and that he should lead the attack. This too was conceded, and the brave old man was slain an hour afterwards, fighting among the foremost.

There are many such old men sitting at their homes in the obscurity of the pension list, who have done good service as soldiers, and are ready to do it again; but having left all record of their worth behind them, they are unknown to the civil authorities, and are lost to us both as soldiers and citizens.

With regard to the composition or nationality of the rank and file of the present Bengal army, as compared with the one that disbanded itself in 1857, it is certain that as we have extended our recruiting ground to the north, so have we improved the fighting quality of our soldiers. This, I presume, cannot be questioned by the most blind believer in the "Old Sepoy."

I am of opinion, though, that we are far from making the best possible use of the materials at our disposal, and that the whole system of recruiting requires to be examined, with a view to some distinct rules being laid down on the subject.

Three thousand years have failed to obliterate the institutes of Menu, which separated the Aryan communities of the Gangetic Valley into priests, warriors, merchants, and handicraftsmen.

To this day caste and calling are alike hereditary; and it is no more accounted a shame to the priestly Brahmin to turn his back upon a foe, than it is to the soldierly Rajpoot to stumble at the "Shastras."

In the days of Warren Hastings, Clive, and Wellesley, we recruited our regiments from the long-acknowledged fighting classes of the several countries that had yielded to our rule.

Later on, we flooded our ranks with Brahmins, who, though willing to accept the pay, were not likely to possess the qualities of good soldiers, and whose intrigues and cabals kept the army in a state of continuous though suppressed mutiny, till they reached a climax, and wrecked it altogether.

Since 1857 we have, as regards our Hindustani soldiers, adopted a less dangerous but equally short-sighted policy; we have enlisted large numbers of men of various servile and inferior breeds, which never from time immemorial sent a soldier into the field, and who though harmless to ourselves, are likely to be equally harmless to our enemies.

It is of course necessary to have some counterpoise to our more northern troops, and for that purpose, if for no other, we want, not make-believe soldiers, but *fighting men*, of whom there is no lack among the Rajpoots or Chuttries, the Mahomedans and others, once dominant or independent races and classes of India, with military or predatory instincts and traditions.

Another defect of our system or want of system, as regards enlistment, is that at present there is scarcely a regiment in the presidencies of Bengal and Bombay that does not send its recruiting parties into the Punjab. Without entering at length into the question of class regiments, I think I may safely assert that, whereas in a purely Punjab regiment, a Punjabee (Sikh, Dogra, or Mahomedan), retains whatever good qualities he may possess as a soldier, in a Hindustani one he very rapidly deteriorates, and assimilates in habits, feelings, and every other respect with the classes he is surrounded by.

The same may be said of the Pathan and the Goorkha, our finest non-subject materials for the ranks.

The more the different fighting classes are kept separate the better; and if the objections to purely class regiments (which objections in my opinion are not as weighty as the arguments in favour of such) forbid them, we should at least recruit our several corps strictly within certain provincial or geographical limits, so as to know exactly what to expect from each in times of popular commotion and disaffection, or in the particular service for which you may require it. "Divide et impera" is the principle I would advocate.

C. H. Brownlow,
Brigadier-General.

September 1875.

APPENDIX U.

EXTRACT from a Letter from Major-General Blake, commanding at Burmah, dated Rangoon, 30th July 1872.

MY DEAR LORD NAPIER,

THE last mail brought me your letter, in which you do me the honour of asking my opinion on various points connected with the Madras army; and to do so as concisely as possible, I will take your questions seriatim, and reply accordingly; and will afterwards give my reasons for my deductions.

Question 1.—Is the Madras sepoy inferior to the police of Burmah, or to the village levy?

Answer.—Decidedly not; but very much superior to both.

Question 2.—Does he consider any work outside his barracks as a hardship?

Answer.—I never heard any expression to warrant my saying that he did.

Question 3.—That he starves himself to support his family?

Answer.—I must allow there is a certain amount of truth in this statement.

Question 4.—The state of discipline in the Madras army generally?

Answer.—I consider the discipline generally excellent; I consider that it was never better.

Question 5.—Whether with the present materials the Madras army is efficient under the new organization?

Answer.—I consider the Madras army will never be as efficient as in former days.

Question 6.—What measures, to restore its efficiency?

Answer.—A restoration to the old system, or a posting of young officers, with the understanding that they are not to be removed from corps to corps.

Question 7.—Whether any improvement could take place in the promotion or appointment of Native officers?

Answer.—Yes, they are at present, with few exceptions, all too old.

Question 8.—Whether a better class, in a limited extent, could be interpolated in the commissioned ranks, and whether Madras could furnish that class?

Answer.—A matter for serious consideration.

Mysore still contains many families of good and ancient descent, whose youthful members do occasionally enlist even in our ranks, but these generally, in that subordinate grade, do not turn out well. They are too proud for their position; but those same men would make excellent Native officers; sometimes, but rarely, our Hindoos make good Native officers; I am bound to say, the very best I ever knew is a Hindoo, but this is an exception.

Question 9.—Does the Madras army require improvement in discipline and efficiency?

Answer.—Here I must separate discipline from efficiency; without the former of course there cannot be the latter; yet the reverse may be so; and I consider it is so. I believe the discipline of the Madras army was never better (generally) than it is now; but not so the efficiency; more young officers are required, and those officers should remain posted to the corps for a certain term of years, and thus acquire some knowledge of, and learn to take an interest in, their men.

I will now proceed to give my reasons for my answers.

For that to question 1—

We had a small party, a Jemadar's guard of 20 men, stationed at a place called Keiketo, when a dangerous insurrection of a race called the Toungthoos, under a very influential leader named Kyan Theela, took place.

The Deputy Commissioner, a most able man, although he had an invasion on his north-east frontier to attend to, yet considered this insurrection of a far more dangerous character, as he knew not where it would end, as the Toungthoos are both powerful and numerous in that part of the Martaban division of British Burmah; he therefore sent word to his Assistant Commissioner at Sittang to raise what men he could, and go down and attack Theela, who was on a hill near Keiketo.

I think Sladen had about 400 police and village levies with him. There was a talk and nothing more, as I imagine. Sladen could not trust his men to face Theela. He withdrew, leaving Keiketo to be taken care of by the Jemadar's guard.

Theela came down to attack and plunder the town, which is the richest in that portion of the country, and this small guard turned out to defend it. They not only drove them back, but they killed Kyan Theela, their leader, and I sent his head, being that of a peculiar race, to Colonel Cunningham.

The Jemadar was very properly decorated with the Bahadoor. The same thing would happen again with the same sort of man in command.

I will now advance one more instance, though this happened in Malabar, and with my own corps.

Some Moplahs, nine in number, had murdered some Nairs, and taken possession of their house.

The captain of my corps who was in command at Calicut, a weak and sickly man, when called upon to assist the civil authorities in capturing these murderers, sent the very worst Native officer in the corps, a Jemadar, a miserable weak creature. The house, like all those on the western coast, was strongly built of latterite, with one door below, which was closed, and windows above, which were opened.

Mr. Silver, the assistant collector, called out to them saying,—"You see the sepoys have come "upon you, you had better come out and give yourselves up." They replied,—"We are going "to our prayers now, but we will come out directly." On this a naique, a grandson of one of the old Mysore commandants, said in an insolent tone to the Jemadar,—"What are you stopping "here a 100 yards from the house for? give me six men, and I will kill them all." The Jemadar replied,—"Oh, Syed Mattab, you can take them." Six men immediately stepped out, and they got close to the house, just as the Moplahs made their rush, armed for close quarters with their tulwars and knives. The naique had warned his men not to fire till the Moplahs were close;

every bullet took effect, and they bayonetted the others. At this very place, Mallipooram, some short time afterwards, a portion of Her Majesty's 94th were driven back.

For answer to question 2—

My reason. The sepoys in Burmah sweep the barracks, and the space that may be called the barrack square, daily, as a matter of course; but I have had them make roads, construct bridges, and plant trees, and I never heard a murmur.

To question 3—

I was in command of my corps at Sheoay Gheen, and one of the companies remitted to India one month more than the whole of its pay; and this excess could only have been acquired by sale of its rations. It never occurred again; but unless closely watched, the sepoy (particularly Madras Hindoos) will dispose of his rations, and send the money to his family.

To question 4—

I have during the last season inspected all the corps in British Burmah, and have arrived at this conclusion.

To question 5—

In former days one European officer to each company was considered as the smallest number to ensure efficiency, and I consider the same is applicable to the present day.

To question 6—

I have observed the best regiments are those which have chanced to keep their original officers with them; the very corps your Excellency admires, the 15th, has retained its commandant, the second in command (lately appointed officiating Quartermaster-General) and a wing officer—these all belonged to the corps under its original formation.

To the remaining questions I think no further explanations are required.

As I have above said the whole of the force at present in British Burmah has been inspected by me, including the three companies at Akyab, from which I have only just returned. They had been employed in the Arracan hill tracts, and when they returned were very sickly. I found them greatly improved and decidedly a good spirit prevailing among them.

This corps, the 27th, was employed between Cawnpore and Lucknow during the mutiny in 1857.

I propose sending another company up to Akyab to complete the wing command.

The 14th Native Infantry here stationed is an excellent corps, good in every respect, except that their Native officers are too old.

When Lord Mayo and his party came down to Rangoon, the men of this corps made a new road, and cleared the ground for the viceregal cortege to drive round. It was a request on my part, and was responded to immediately by the men.

At Thayet Mayo I saw the 1st Native Infantry, a fine corps, healthy and strong; I was compelled to take a guard of this corps on my journey across the watershed of the Irrawaddy and Sittang rivers, as the path by which we travelled approached within two or three miles of the Burmese frontier, where it is well known that villains of all sorts have taken up their abode, and I was therefore able to see of what stuff some of these men of the 1st were composed. They always assisted in loading and unloading the elephants and worked hard all day.

At Tounghoo, I inspected the 10th Native Infantry. They are a very good corps, and fortunately the second in command is an original officer of the corps; one of the captains also; and they have an excellent adjutant.

It is thoroughly well understood that our sepoys come across the water for a term of three years only. It therefore, I think, speaks greatly in favour of the 37th Native Infantry, that, though three companies that are now at Maulmein are now nearly eight months over their time, I heard not one word of murmur when I was over there at the end of last month.

It is but natural that as I have, from my boyhood, been associated with Madras sepoys, I should have a leaning towards them, but I do think, that even this partiality will not blind me to their faults.

I might have mentioned to your Excellency when at Maulmein, that I considered irregular corps who might have their wives and families with them, as likely to answer, and be the least expensive for service in Burmah; such a corps I raised in 1857, and commanded it during the five years of its existence; but when the 8th regular corps of Madras infantry were broken up, my corps shared the same fate. It did very good service while it lasted. They were originally termed the Madras Police Battalion. I had the designation changed to Madras Sapper Battalion. A considerable portion of the Maulmein and Amherst road was made by those men while under my command, and (the Executive Engineer told me) at a very considerable saving to Government.

The two corps your Excellency has mentioned are composed, generally, of a very different class and caste of men. The 38th, though originally raised at Ellore, were for many years recruited, like my own corps, the 36th, in Mysore, Seringapatam, and the surrounding country; and amongst them were Mahomedans of very good families.

I like them; they are born soldiers and are decidedly the bravest race we have amongst us; but at the same time, they are turbulent; however, this shakes down after a little training. I was eight years adjutant, so have had plenty to do with these youths.

The 40th are a Southern India corps, originally raised at Tanjore; they have, I believe kept principally to Tanjore, Trichinopoly, and those southern parts wherein to recruit their ranks.

The Madras officer of experience who has stated that Madras sepoys in Burmah are quite unfit for military service, and that in case of war with Burmah he would pefer the police and village levies, has advanced an opinion that requires substantiating. I should certainly like to know what his experience amounts to.

I remain, &c.,
(Signed) H. W. Blake.

Appendix V.

Return of Actions in which Native Officers Commanding Detachments of Sind Horse have been engaged.

Camp, Jacobabad, July 1875.

Corps.	Date.	Place of Action.	Name of Officer Commanding.	Detailed Remarks.
1st Sind Horse -	20th January 1847 -	Hussun ke Ghurree	Duffadar Rehim Bux (Duffadars performed the duties of Jemadar at this time.)	Extract from General Orders, dated 2nd February 1847 :— The Governor has great pleasure in publishing to the troops in Sind that a party said to consist of 200 robbers were met on the frontier by a Duffadar and 18 Sowars of the Sind Horse. This resolute officer, like a brave soldier, instantly charged and dispersed this band of robbers. They fled, casting their arms away; some of them were cut down by the Sowars, &c., &c. The Lieutenant-General thus publicly expresses his approbation of the detachment and its commandant. They have maintained the honour of the Sind Horse.
Ditto - -	26th April 1848 -	Near Kusmore -	Jemadar Abdoola Khan.	Hearing that some Bhoogties had been plundering near Kusmore, the Jemadar commanding the post immediately proceeded with a party in pursuit. He came upon a party of 50 Bhoogties on foot, and well armed; two were killed and two taken prisoners, the rest escaping to the top of an inaccessible hill; all the plundered property was recovered.
Ditto - -	7th April 1848 -	Ditto -	Naib Russuldar Shaik Allaoodeen and Naib Russuldar Kurrum Ali Khan.	This post was attacked by a large body of plunderers from the hills, and a desperate hand to hand fight ensued; after a violent struggle the enemy were beaten off. On our side the loss was one Duffadar, three Sowars, and four horses killed, four Sowars wounded. Naib Russuldar Kurrum Ali Khan now came up and attacked a body of 300 or 400 horsemen, who were driving off nearly 1,000 camels. He instantly charged them, killing a great number, and recovering the whole of the plundered property.
2nd Sind Horse	1849 - -	Kusmore - -	Russaidar Shaik Allaoodeen and Naib Russuldar Kurrum Ali Khan.	Both these officers were engaged together; the enemy were 500 strong, and made a night attack on the Kusmore outpost, which had been only relieved during the day. Naib Russuldar Kurrum Ali Khan, who had some hours before marched with the relieved outpost on his way to Jacobabad, hearing firing in his rear, at once marched back to the assistance of Russaidar Allaoodeen Khan, thus making a very long march. Of the enemy 12 were killed; of the Sind Horse one Sowar was killed and four were wounded.
1st ditto -	24th December 1850	Hussun ke Ghurree and Hyran.	Russuldar Hyder Khan and Jemadar Doorga Sing.	Jemadar Doorga Sing pursued the plunderers from Kundmote for several miles, until he arrived with only three men near Hyran, when he followed the enemy into the hills, where he suffered for his rashness, himself and party being all killed by the enemy. Russuldar Hyder Khan also started from Hussun ke Ghurree, and shortly after the death of Doorga Sing arrived on the spot, in time to save the lives of the wounded and dismounted men, whom, together with a number of plundered camels, he brought safely back to his post.

Corps.	Date.	Place of Action.	Name of Officer Commanding.	Detailed Remarks.
1st Sind Horse	8th October 1851	Kusmore	Russuldar Hyder Khan.	A party of plunderers captured 40 camels and killed a Jutt near Kusmore. Russuldar Hyder Khan pursued them until they escaped into the hills, but he was able to recover all the plunder.
2nd ditto	3rd April 1853	Ditto	Russuldar Shaik Kurreem.	With Shaik Kurreem were engaged Naib Russuldar Gungadeen and Jemadar Hafeezoola Khan, of the Sind Horse. Naib Russuldar Gunga Deen and five Sowars were killed, and Russuldar Shaik Kurreem and some Sowars wounded; of the enemy 25 men were killed and 10 left wounded. For this engagement five men were awarded the order of merit.
Ditto	10th August 1862	Ditto	Russuldar Bahadoor Khan.	With Russuldar Bahadoor Khan were engaged Naib Russuldar Mendah Khan and Jemadar Kooshal Sing. In this fight one Jemadar and several Sowars of the Belooch Guides were killed. Six of the enemy were left dead on the ground, and several other dead bodies had been removed. The Sind Horse lost no men.
3rd ditto	19th January 1866	Soon	Russuldar Major Meer Kasim Ali Bahadoor.	Russuldar Meer Kassim Ali, 3rd Sind Horse, commanding the outpost at Soon, received a report that a body of Murrees had assembled for the purpose of plundering British territory, and immediately marched with about 50 men of his detachment towards the direction indicated, and on arrival at a watering place called Tohint, about 16 miles distant, he came across the robbers, numbering about 200 or 300, and immediately attacked them. The Murrees lost 52 men killed and wounded; the remainder retreated amongst the ravines and hills in the neighbourhood, and which are quite inaccessible to horsemen. Seeing this the Native officer very properly drew off his men towards nightfall to rejoin his outpost, the Murrees returning into their own country.
Ditto	1867–68	Abyssinia	Ditto	Commanded a squadron of 3rd Sind Horse, who escorted the remains of King Theodore's army through the Galla country. While performing this duty he beat off several attacks made by the Gallas.
2nd Sind Horse	28th January 1867	Ghoranarree	Russuldar Tej Sing	With Russuldar Tej Sing were engaged Russuldar Goolam Mahomed and Jemadar Bundeh Ali Khan and Hussun Khan. Russuldar Tej Sing made a long march of 35 miles, and made a junction with a Native officer of the 3rd Sind Horse, just as the latter had overtaken a large force of plunderers. In this fight the Sind Horse took several prisoners and arms; the loss of the enemy was estimated at 20 in killed and wounded. The Sind Horse had one Native officer wounded and several horses killed.
3rd ditto	1867	Ditto	Naib Russuldar Meer Monawar Ali.	Commanded in an attack on the Murrees at Ghoranarree; horse killed; six of the enemy were killed, the remainder escaped into the hills.

Corps.	Date.	Place of Action.	Name of Officer Commanding.	Detailed Remarks.
1st Sind Horse	31st July 1874	Soon	Russuldar Imaum Khan.	Receiving information of the Bhoogties having plundered a large number of cattle, the Russuldar started in pursuit. After proceeding 50 miles he came on the enemy, who mounted a tower and defied him. He dismounted half his troop and proceeded to storm the tower; after firing a few shots, the enemy threw down their arms, and were all captured, including the son of the Bhoogtie Chief. The whole of the property was recovered. Ten horses were killed by fatigue in this pursuit.

(True extracts.)

FRANCIS LOCH, Colonel,
Commanding Sind Frontier Force.

APPENDIX W.

RETURN showing Birthplace, Religion, and Tribe or Caste of Native Officers, Sind Horse Brigade, who have commanded Detachments in Independent Actions.

Camp, Jacobabad, 6th October 1875.

No.	Rank and Name.	Birthplace.	Religion.	Tribe or Caste.	Remarks.
	1st Regiment Sind Horse.				
1	Duffadar Rehim Bux	Cawnpore	Mussulman	Shaik.	
2	Jemadar Abdoolla Khan	Bareilly	„	Patan.	
3	Naib Ressaldar Shaik Alloodeen.	Beejapore	„	Shaik.	
4	Naib Ressaldar Kurrum Ali Khan.	Furrukabad, Mhow.	„	Patan.	
5	Ressaldar Hyder Khan	Agra	„	„	
6	Jemadar Doorga Sing	Kalpee	Hindoo	Brahmin.	
7	Ressaldar Imaum Khan	Moradabad	Mussulman	Patan.	
	2nd Regiment Sind Horse.				
8	Ressaidar Shaik Alloodeen (deceased).	Deccan	„	Shaik.	
9	Naib Rassaldar Kurrum Ali Khan (deceased).	Mhow	„	Patan.	
10	Ressaldar Shaik Kurreem (deceased).	Suttara, Deccan	„	Shaik.	
11	Ressaldar Bahadoor Khan (deceased).	Delhi	„	Patan.	
12	Ressaldar Tej Sing (deceased).	Puttialla	Hindoo	Sikh.	
	3rd Regiment Sind Horse.				
13	Ressaldar Major Meer Kassim Ali, Bahadoor.	Poona	Mussulman	Syud.	
14	Naib Rassaldar Meer Manawar Ali.	Khyrtul in Ulwur.	„	„	

(Signed) FRANCIS LOCH, Colonel,
Commanding Sind Frontier Force.

Organization.—Native Army.

PROCEEDINGS of the Madras Government, Military Department.—(No. 1764, Organization Native Army, dated 13th April 1875.)

Read the following paper:—

From Brigadier-General R. C. Stewart, Adjutant-General, to the Secretary to Government, Madras Military Department,—(No. 239, dated Fort St. George, the 10th April 1875.)

WITH reference to order of Government, dated 25th February 1875, No. 924, communicating letter from the Government of India dated 17th idem, No. 785, forwarding for distribution, and to be filled up in each corps of the Native Army of this Presidency, copies of blank forms of returns, &c., I have the honour, by order of the Commander-in-Chief, to forward, for transmission to the Government of India, the returns duly filled up in each corps, together with a tabulated statement of Tables I. and II.

2. The returns from corps in Burmah and from the 33rd Regiment Native Infantry at Dorundah, will be forwarded immediately on receipt.

3. Officers commanding corps wanting to complete, have been directed to recruit to full strength; any defects brought to light in the quality of recruits or system of recruiting have been ordered to be rectified.

4. A list affording the information called for in paragraph 2 of the letter above referred to is also forwarded, and the inspection reports for the present year will be transmitted so soon as the whole are received.

Requesting to be furnished with copies of the replies given in the annual confidential reports of Native regiments as to the quality of recruits and efficiency of Native officers for the past three years.

Copy of the above and its original enclosures forwarded to the Secretary to the Government of India, Military Department, for the information of the Right Honourable the Governor-General in Council, in reply to Colonel Burne's letter, No. 785, dated 17th February 1875.

(Signed) A. C. SILVER, Col,
Secy. to Govt.

To
The Secy. to the Govt. of India,
Military Department.

With a Tabulated statement and 42 returns sent in three separate covers.

PROCEEDINGS of the Madras Government, Military Department, 19th May 1875.

Organization.—Native army.

Read the following letter:—

From Lieutenant-Colonel G. D. Beresford, Officiating Assistant Adjutant-General, to Colonel A. C. Silver, Secretary to Government, Madras, Military Department.—Fort St. George, the 14th May 1875, No. 317.)

WITH reference to paragraph 2 of letter from this department, No. 239, dated 10th ultimo, I have the honour, by order of the Commander-in-Chief, to forward, for transmission to the Government of India, the returns duly filled up by the regiments noted in the margin, together with a supplemental statement of Tables I. and II.

6th, 15th, 17th, 33rd, and 39th Regiments Native Infantry.

2. The Tables No. I. from the 17th and 73rd regiments Native infantry, stationed in Burmah and Dorando, having been sent direct, do not bear the remarks of the general officer in the last column, but, to avoid delay, which would be caused by returning them for the above purpose, they have been forwarded in their present state.

Docket, 19th May 1875, No. 2,386.

Copy of the above, and its original enclosures, forwarded to the Officiating Secretary to the Government of India, Military Department, for the information of the Right Honourable the Governor-General in Council, in continuation of this office docket No. 1,764, dated 13th April 1875.

(Signed) A. C. SILVER, Colonel
Secretary to the Government.

From Colonel J. Macdonald, Secretary to Government, Bombay, Military Department, to Colonel H. K. Burne, Secretary to the Government of India, Military Department.—(No. 1,457, dated Bombay Castle, the 14th April 1875.)

I HAVE the honour to acknowledge the receipt of your letters Nos. 786 and 1,072 dated 17th and 22nd February last respectively, (Organization / Native Army), and in reply am directed to transmit the accompanying documents noted in the margin, furnishing the information required by the Government of India in regard to the condition of the Native army.

A schedule of the replies given in the annual confidential reports of Native Regiments.
Table I.—Original returns filled up by corps.
Table II.—Compiled from returns furnished by corps.
Table III.—Containing information regarding invaliding and rejection of soldiers

2. With reference to the Return Table I. from the corps specified in the margin, which are serving at Aden, the Adjutant-General explains that column 7 has been left vacant by an oversight, and that time did not allow of the omission being rectified.

ADEN TROOP.
No. 2 company Native Artillery.
2nd Regiment Native Infantry, (Grenadiers.)

From Lieutenant-Colonel H. Brooke, for Adjutant-General, to Colonel H. K. Burne, Secretary to the Government of India, Military Department, Simla.—(No. 734B, Native Army, dated Head-quarters, Simla, the 16th April 1875).

IN compliance with the request contained in the third paragraph of your letter No. 784, dated 17th February 1875, I have the honour, by direction of the Right Honourable the Commander-in-Chief, to forward the enclosed copies of the replies given in the annual confidential reports of Native regiments, as to the quality of recruits and efficiency of Native officers for the years 1872–73 and '74.

2. The confidential reports for 1875 will be forwarded as soon as possible.

From Major-General P. S. Lumsden, C.B., C.S.I., Adjutant-General, to Colonel H. K. Burne, Secretary to the Government of India, Military Department.—(No. 907B, Native army, dated Head-quarters, Simla, the 30th April 1875.)

As requested in paragraph 1 of your letter No. 784, of the 17th February last, "Organisation" / Native Army., I am directed by the Commander-in-Chief to forward two copies of the returns received therewith duly filled up by each regiment of the Bengal Army, except the 42nd and 44th Native Infantry, together with a return furnishing the information called for in your letter No. 1070, of the 22nd idem.

2. The returns from the 42nd and 44th Native Infantry will be forwarded as soon as received. The delay in their submission has been caused in consequence of the regiments being employed on service with the Naga force.

3. I am directed to forward copy of a letter from the officer commanding 16th Native Infantry, stating that the information called for in your No. 1070, of the 22nd February last, will be furnished on arrival of the regimental headquarters at Jalpáiguri.

COPY OF A LETTER from the Officer commanding 16th Native Infantry, to the Adjutant-General.— No. 43, dated 10th March 1875.)

I HAVE the honour to state that I am unable to furnish the information requested in your memorandum No. 817, Camp, dated Headquarters, Fort William, 24th February 1875, regarding the number of men presented and rejected by the annual invaliding committees for 1870–71 72–73–74, owing to the returns for three years being with the regimental records at Jalpáiguri. The headquarters of the regiment are expected to be at Jalpáiguri about the 15th April, and the return requested will be supplied on arrival there.

From Major-General P. S. Lumsden, C.B., C. S. I., Adjutant-General in India, to Colonel H. K. Burne, C.B., Secretary to the Government of India, Military Department.—(No. 1233B, Native Army, dated Head-quarters, Simla, the 3rd June 1875.)

IN continuation of my letter No. 907B, dated 30th April last, I am directed by the Commander-in-Chief to forward two copies of the returns received with your letter No. 784 of the 17th February 1875, duly filled up by the 42nd and 44th Native Infantry, together with a return furnishing the information called for in your letter No. 1070, of the 22nd idem.

2. With reference to paragraph 3 of my letter quoted above, I am directed to inform you that it has been necessary to return for correction the report received from the 16th Native Infantry, but it will be forwarded whenever received.

From E. W. Trotter, Esq., for Secretary to Government, Punjab, Military Department, to Colonel H. K. Burne, Secretary to the Government of India, Military Department.—(No. 100–1132, dated Lahore, the 23rd April 1875.)

IN reply to your letter No. 787, dated 17th February, 1875, Organisation, Native Army, I am desired to forward the returns (Tables I. and II.) called for.

I am also to forward copies of replies given in the annual confidential reports for 1871–72, 1872–73 and 1873–74 on the subject noted in paragraph 2 of your letter under reply, and to state that the reports for the year 1874–75 will be forwarded as soon as practicable.

3. I have also the honour to forward the statements of service of officers in regiments of the Punjab Frontier Force under their present appointments called for in your letter No. 179A, dated 3rd March 1875.

Punjab Frontier Force.

Service of Commandants on 1st January 1875 with their present Regiments and as Commandants.

		With Regiments.		As Commandants.	
		Years.	Months.	Years.	Months.
Major C. S. McLean,	1st Punjab Cavalry	12	2	4	9
Lieutenant-Colonel T. G. Kennedy,	2nd Punjab Cavalry	9	10	9	10
Colonel L. B. Jones,	3rd „	22	—	15	2
Lieutenant-Colonel C. J. Godby,	4th „	15	9	15	9
„ W. Paget,	5th „	23	8	16	6
Major F. H. Jenkins.	Corps of Guides	13	2	4	8
Colonel J. P. W. Campbell,	1st Sikh Infantry	14	9	14	9
Major J. J. Boswell,	2nd „	—	7	—	7
Colonel D. Mocatta,	3rd „	11	1	8	8
„ H. F. M. Boisragon,	4th „	14	—	16	7
Major F. J. Keen,	1st Punjab Infantry	11	1	5	5
„ H. Tyndall,	2nd „	14	8	5	6
„ P. C. Rynd,	3rd „	10	10	3	—
F. T. Bainbridge,	4th „	4	11	2	2
„ J. W. McQueen,	5th „	4	6	4	6
„ B. R. Chambers,	6th „	2	—	2	—
Colonel P. F. Gardiner,	5th Goorkhas	—	7	15	4
	Total	185	8	145	2

	Years.	Months.
Average service of 17 commandants of the Frontier Force with their present regiments	10	11
As commandants	8	6

Service of Seconds-in-Command, Punjab Frontier Force.

		With Regiments.		As Seconds in Command.	
		Years.	Months.	Years.	Months.
Captain G. C. Bird,	1st Punjab Cavalry	4	5	1	5
„ F. Lance,	2nd „	16	7	14	4
Major A. Vivian,	3rd „	14	9	14	9
„ J. Gillespie,	4th „	8	7	3	5
„ B. Williams,	5th „	2	3	2	3
Captain R. B. Campbell,	Corps of Guides	10	8	4	5
„ G. Steward,	Guide Corps	5	8	5	8
Major H. C. P. Rice,	1st Sikhs	13	7	9	10
Lieutenant-Colonel R. Bracken,	2nd „	20	6	10	10
Major G. N. Money,	3rd „	2	—	2	—
Captain A. FitzHugh,	4th „	11	8	2	10
„ H. W. Pitcher, V.C.,	1st Punjab Infantry	11	10	5	5
„ E. C. Codrington,	2nd „	—	6	—	5
Major G. N. Saunders,	3rd „	9	8	3	—
Captain A. J. D. Hawes,	4th „	10	9	—	10
Major C. E. Steward,	5th „	16	8	12	1
„ S. J. Brown,	6th „	13	2	6	8
„ H. P. Close,	5th Goorkhas	16	6	15	3
	Total	189	7	115	5

	Years.	Months.
Average service of 18 seconds-in-command of Punjab Frontier Force with their present corps	10	6
As seconds-in-command	6	5

SERVICE of 2nd and 3rd Squadron Officers of Cavalry and of Wing Officers of Infantry of the Punjab Frontier Force with their present Regiments.

—		Years.	Months.
Captain J. R. B. Atkinson,	1st Punjab Cavalry	8	2
„ H. Wylie,	1st „	—	10
„ J. H. Broome,	2nd „	11	3
„ R. C. R. Clifford,	2nd „	9	—
„ W. C. Anderson,	3rd „	13	6
„ R. B. Lockwood,	3rd „	10	8
„ T. O. Underwood,	4th „	9	1
„ R. P. Blake,	4th „	8	11
„ F. Hammond,	5th „	8	8
„ G. C. Steward,	5th „	12	9
„ A. G. Hammond,	Corps of Guides	11	3
„ R. C. Hutchinson,	„	4	7
„ A. G. Ross,	1st Sikh Infantry	13	—
„ H. Pratt,	2nd „	5	2
„ C. J. Griffiths,	3rd „	8	2
„ B. E. Gowan,	4th „	11	8
„ T. Higginson,	1st Punjab Infantry	4	6
„ A. H. Turner,	2nd „	6	6
„ C. K. Mackinnon,	3rd „	10	2
„ A. McCrae Bruce,	4th „	9	5
„ C. M. Hall,	5th „	11	1
Major W. C. Chowne,	6th „	11	7
Captain J. Cook,	5th Goorkhas	1	9
	Total	201	8

	Years.	Months.
Average service with their present regiments of 23 squadron and wing officers, Punjab Frontier Force	8	9

SERVICE of Adjutants of the Punjab Frontier Force with their present Regiments and as Adjutants.

—		With Regiments.		As Adjutants.	
		Years.	Months.	Years.	Months.
Lieutenant H. D. Hervey,	1st Punjab Cavalry	6	8	4	4
Captain J. R. Campbell,	2nd „	11	7	10	10
„ J. D. Macpherson,	3rd „	10	8	7	9
„ T. Shepherd,	4th „	10	10	10	—
„ F. S. Carr,	5th „	8	11	4	10
„ C. E. Hunter,	Guide Corps	8	—	4	—
„ C. C. Brownlow,	1st Sikhs	9	4	9	4
Lieutenant W. O. Thompson,	2nd „	8	3	3	11
„ C. B. Norman,	3rd „	2	—	2	—
Captain A. Scott,	4th „	9	7	3	5
„ A. Vallings,	1st Punjab Infantry	10	1	9	3
„ A. D. Strettell,	2nd „	5	1	—	6
„ J. E. P. Mosley,	3rd „	5	8	5	8
„ A. J. Shepherd,	4th „	6	6	3	—
Lieutenant G. Gaisford,	5th „	4	8	—	5
Captain T. F. Bruce,	6th „	11	8	6	8
„ E. Molloy,	5th Goorkhas	6	9	4	1
	Total	136	3	90	—

	Years.	Months.
Average service of 17 adjutants of the Punjab Frontier Force with their present regiments	8	0
As adjutants	5	3

SERVICE of Quartermasters of the Punjab Frontier Force with their present Regiments and as Quartermasters.

		With Regiments.		As Quartermasters.	
		Years.	Months.	Years.	Months.
Captain A. J. Nicholson,	Guides	10	3	9	2
„ A. F. Lambe,	1st Sikhs	5	6	1	7
„ F. E. Hastings,	2nd „	12	—	10	10
„ W. C. Ramsden,	3rd „	5	10	5	1
„ V. Rivaz,	4th „	4	1	3	5
„ H. Howell,	1st Punjab Infantry	7	2	4	6
Lieutenant J. M. D. Lewes,	2nd „	5	3	—	6
Captain J. Finnis,	3rd „	6	5	6	5
„ A. Gaselee,	4th „	7	3	—	8
„ C. Young,	5th „	—	4	—	6
Lieutenant A. M. Sandilands,	6th „	5	10	3	2
Captain J. M. Sym,	5th Goorkhas	11	6	4	1
	Total	81	5	51	11

	Years.	Months.
Average service of 12 quartermasters of the Punjab Frontier Force with their present regiments	6	9
As quartermasters	4	4

From Lieutenant-Colonel S. Black, Secretary to Government, Punjab, Military Department, to Colonel H. K. Burne, Secretary to the Government of India, Military Department,—(No. 112–1,323, dated Lahore, the 17th May 1875.)

COPY of a MEMORANDUM, No. 1,256, dated 5th May 1875, from Brigadier-General C. P. Keyes, C.B., Commanding Punjab Frontier Force, to Lieutenant-Colonel S. Black, Secretary to Government, Punjab, Military Department.

I have to apologise for the delay in sending this return (Table 1, Peshâwar Mountain Battery).

I was under the impression that it had been despatched.

It was ready some time ago, but it got mixed up with inspection returns.

Copy forwarded to the Secretary to Government of India, Military Department, with return in original, in completion of the returns forwarded with this Department letter, No. $\frac{100}{1,132}$ dated 23rd April last.

Confidential.—PROCEEDINGS of the MADRAS GOVERNMENT, Military Department,—(No. 1,765 Organization Native Army, dated the 13th April 1875).

Read the following paper:—

From Brigadier-General R. C. Stewart, Adjutant-General, to the Secretary to Government, Madras, Military Department,—(No. 238, dated Fort St. George, the 12th April 1875).

As directed in Proceedings of Government, No. 956, dated 1st March 1875, I have the honour, by order of the Commander-in-Chief, to forward the reports from all regiments of the Madras Army with the exception of those marginally noted, which are serving in Burmah, required by the Government of India, as called for in confidential letter No. 1,071, dated 22nd February 1875, from the Secretary to the Government of India, Military Department.

6th, 15th, 17th, and 39th Regiments Native Infantry.

2. The reports from regiments serving in Burmah have been called for and will be transmitted as soon as received.

3. For convenience of reference a tabulated statement of these reports prepared in this Office is also forwarded.

Copy of the above and its original enclosures, forwarded to the Secretary to the Government of India, Military Department, for the information of the Right Honorable the Governor-General in Council, with reference to Colonel Burne's letter, No. 1,071, dated 22nd February 1875.

(Signed) A. C. SILVER, Col.,
Secretary to Government.

To the Secretary to the Government of India,
Military Department.

With a tabulated statement and 42 returns sent in three separate covers.

Confidential.—PROCEEDINGS of the MADRAS GOVERNMENT, Military Department,—(No. 2,208, Organization—Native Army, dated the 13th May 1875).

Read the following paper:—

From Brigadier-General R. C. Stewart, Adjutant-General, to the Secretary to Government, Military Department,—(No. 309, dated Fort St. George, the 5th May 1875.)

In continuation of my letter No. 238, dated 12th April 1875, I have the honor, by order of the Commander-in-Chief, to forward for submission to Government, supplementary statement for regiments serving in Burmah of men brought before Medical Invaliding Committees for the years 1870, 1871, 1872, 1873, and 1874.

Copy of the above, and its original enclosure, forwarded to the Secretary to the Government of India, Military Department, for the information of the Right Honorable the Governor-General in Council, in continuation of this office docket, No. 1,765, dated 13th April 1875.

(Signed) A. C. SILVER, Col.,
Secretary to Government.

Confidential.

SUPPLEMENTARY TABULATED STATEMENT of Reports received from Commandants of Regiments of the Madras Native Army, regarding men brought before Invaliding Committees, required by letter No. 1,071, dated 22nd February 1875, from the Secretary to the Government of India, Military Department.

Regiments.	Number of Soldiers in each year presented before Invaliding Committees, and declared by them to be still fit for the Service.					Number of Men so rejected by Committees, who were again presented within one year and again rejected.					Number of Men so rejected by Committees, who were again presented within One Year and who were Invalided.				
	1870.	1871.	1872.	1873.	1874.	1870.	1871.	1872.	1873.	1874.	1870.	1871.	1872.	1873.	1874.
6th Regt. N.I.	–	12	17	19	18	–	–	–	2	5	–	–	–	11	7
15th „	–	10	8	3	5	–	1	–	3	1	–	–	–	–	–
17th „	12	2	8	7	39	–	–	2	4	–	6	1	2	1	–
39th „	29	68	59	72	1	–	30	34	–	–	–	14	6	–	–

Continued,—

Regiments.	Number of Men so rejected by Committees, who were again presented within two years and again rejected.					Number of Men so rejected by Committees, who were again presented within two years and who were invalided.					Number of Men so presented who Died within one or two years respectively.					Remarks.
	1870.	1871.	1872.	1873.	1874.	1870.	1871.	1872.	1873.	1874.	1870.	1871.	1872.	1873.	1874.	
6th Regt. N.I.	–	–	5	3	3	1	–	1	5	2	–	–	–	–	–	
15th „	–	3	1	–	–	–	–	5	–	–	–	–	–	–	–	
17th „	–	–	2	–	–	2	–	1	–	–	1	–	1	–	1	
39th „	6	11	25	1	–	6	5	1	1	–	–	–	2	–	–	

(Signed) R. C. STEWART, Brigadier-Colonel,
Adjutant-General.

Adjutant-General's Office,
Fort St. George, the 5th May 1875.

PROCEEDINGS of the Madras Government, Military Department, No. 1411, Organization.—Native Army, dated 23rd March 1875.

Read the following paper:—

From Brigadier-General R. C. Stewart, Adjutant-General, to the Secretary to Government, Military Department,—(No. 159, dated Fort St. George, the 17th March 1875).

In accordance with instructions contained in letter from the Government of India, communicated to this department, under date 9th March 1875, No. 1113, No. 178, dated 3rd March 1875. I have the honour, by order of Sir Frederick Haines, to forward a return showing the average length of service of officers with their present regiments, and in the appointments they now hold in the cavalry and infantry regiments of the Madras army, reckoning from date of reorganization, 1st November 1865, up to 1st January 1875.

Copy of the above, and the return, forwarded to the Secretary to the Government of India, Military Department, for the information of the Right Honourable the Governor-General in Council, with reference to Colonel Burne's letter No. 178, Organization—Native army, dated 3rd March 1875.

(Signed) A. C. Silver, Col.,
Secretary to Government.

To The Secretary to Government of India, Military Department, with return in original.

Service of Commandants of Madras Cavalry, on 1st January 1875, with their present Regiments, and as Commandants, reckoning from date of Reorganization, viz., 1st November 1865.

	With Regiments.		In Command.	
	Years.	Months.	Years.	Months.
1st Cavalry - - - †	2	4	9	2
2nd „ - - -	9	2	8	3
3rd „ - - - †	8	9	4	3
4th „ - - - *	8	3	9	2
Total - -	28	6	30	10

Average of 4 commandants, 7 years 1 month with present regiment, and 7 years and 8 months as commandants.

Service of Seconds-in-Command of Madras Cavalry on 1st January 1875, with their present Regiments, and as Seconds-in-Command, reckoning from date of Reorganization, viz., 1st November 1865.

	With Regiments.		In Command.	
	Years.	Months.	Years.	Months.
1st Cavalry - - - †	7	1	7	1
2nd „ - - - †	7	8	7	8
3rd „ - - - †	4	3	4	3
4th „ - - -	9	2	7	—
Total - -	28	2	26	—

Average of four seconds-in-command, 7 years months with present regiment, and 6 years 6 months as seconds-in-command.

Service of Adjutants of Madras Cavalry on 1st January 1875, with their present Regiments, and as Adjutant, reckoning from date of Reorganization, 1st November 1865.

	With Regiments.		As Adjutants.	
	Years.	Months.	Years.	Months.
1st Cavalry - - - - ‡	9	2	9	2
2nd „ - - - - ‡	9	2	9	2
3rd „ - - * - ‡	6	6	4	1
4th „ - - - - ‡	7	4*	6	6
Total -	32	2	28	11

Average service of 4 adjutants with their present regiments, 8 years; as adjutants 7 years, 3 months.

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* Officers who rose in the regiment.
† Officers of broken-up regiments.
‡ Officers of broken-up regiments and general list officers.

SERVICE of 2nd and 3rd Squadron Officers of Madras Cavalry with their present Regiments, reckoning from date of Reorganization, viz., 1st November 1865.

		With Regiment.	
		Years.	Months.
1st Cavalry	*	9	2
	*	9	2
2nd „	*	9	2
	*	9	2
3rd „	†	7	8
		5	—
4th „	*	7	8
	†	9	2
Total		66	2

Average of eight 2nd and 3rd squadron officers with their present regiments, 8 years 3 months.

SERVICE of Commandants of Madras Infantry with their Corps, and as Commandants, reckoning from date of reorganization, viz., 1st November 1865—Vide memo. No. 1.

		With Regiment.		In Command.	
		Years.	Months.	Years.	Months.
1st Infantry		7	8	7	8
2nd „		3	10	1	7
3rd „		1	—	2	5
4th „	*	9	2	—	11
5th „	(a)	—	—	5	2
6th „	(b)	1	—	2	9
7th „	*	3	—	1	9
8th „		—	—	9	2
9th „		3	3	—	9
10th „		8	5	9	2
11th „		9	2	6	6
12th „	(c)	—	—	9	2
13th „	(d) ‡	—	—	6	5
14th „	‡	1	8	1	8
15th „	*	5	3	5	3
16th „	‡	—	10	—	10
17th „		1	2	1	2
19th „		1	4	1	4
20th „	‡	2	4	9	2
21st „	‡	7	8	9	2
22nd „	‡	4	6	4	6
23rd „	‡	2	—	2	—
24th „	‡	—	10	—	10
25th „		9	2	5	2
26th „		1	10	5	9
27th „	(e) ‡	—	—	4	5
28th „		3	9	1	4
29th „	‡	1	8	1	8
30th „	(f)	—	—	9	2
31st „	‡	—	5	1	7
32nd „	*	9	2	9	2
33rd „	‡	2	3	2	3
34th „	*	6	9	6	9
35th „		7	8	1	2
36th „	‡	9	2	9	2
37th „		5	9	9	2
38th „	(g)	—	—	3	8
39th „		6	7	9	2
40th „		—	10	—	10
41st „	‡	1	3	1	3
Total		140	4	187	—

Average length of service of 40 commmandants with their present regiments, 3 years 6 months; and as commandants, 4 years 6 months.

* Officers who rose in the regiment.
† Officers of broken-up regiments, and general list officers.
‡ Officers of broken-up and British regiments.

SERVICE of Seconds-in-Command of Madras Infantry with their present Regiments, and as Seconds-in-Command, reckoning from date of Reorganization, viz., 1st November 1865.

	With Regiment.		As Second in Command.	
	Years.	Months.	Years.	Months.
1st Infantry - - - *	9	2	—	1
2nd „ - - -	1	7	6	1
3rd „ - - -	6	2	6	2
4th „ - - - *	1	6	—	10
5th „ - - - †	7	—	1	7
6th „ - - -	2	9	8	9
7th „ - - - †	1	2	4	1
8th „ - - -	1	10	2	—
9th „ - - -	—	—	6	2
10th „ - - -	—	—	7	8
11th „ - - - †	—	—	6	4
12th „ - - - *	9	2	9	2
13th „ - - - †	4	2	4	2
14th „ - - -	7	8	8	9
15th „ - - - †	7	2	7	—
16th „ - - - *	7	8	3	6
17th „ - - - *	4	2	7	1
19th „ - - -	3	8	4	3
20th „ - - - *	6	1	6	7
21st „ - - - *	7	—	4	8
22nd „ - - - †	1	4	8	10
23rd „ - - - †	5	9	7	—
24th „ - - -	4	4	1	1
25th „ - - - †	2	9	1	2
26th „ - - -	7	7	—	10
27th „ - - -	—	—	6	9
28th „ - - - †	1	4	6	6
29th „ - - - *	3	5	1	3
30th „ - - -	2	5	2	5
31st „ - - -	6	10	6	10
32nd „ - - - *	7	2	—	8
33rd „ - - - *	9	2	9	2
34th „ - - -	—	8	—	1
35th „ - - -	1	2	1	2
36th „ - - - †	7	8	7	8
37th „ - - -	4	3	5	8
38th „ - - -	1	3	4	1
39th „ - - - *	1	10	—	10
40th „ - - -	2	4	9	2
41st „ - - - †	3	8	9	2
Total -	162	10	195	3

Average length of service of 40 seconds-in-command with their present regiments, 4 years 1 month; as seconds-in-command 4 years 10 months.

* Officers who rose in the regiment.
† Officers of broken-up regiments.

SERVICE of Wing Officers of Madras Infantry with their present Regiments and as Wing Officers, reckoning from date of Reorganization, viz., 1st November 1865.

	With Regiment.		As Wing Officer.	
	Years.	Months.	Years.	Months.
1st Infantry - - - †	—	1	—	1
2nd „ - - - *	7	2	7	8
3rd „ - - - *	1	6	1	6
4th „ - - - †	—	1	—	1
5th „ - - -	—	—	4	8
6th „ - - - †	7	8	7	8
7th „ - - -	4	5	4	5
8th „ - - - *	7	6	7	6
9th „ - - - *	5	8	5	8
10th „ - - - *	9	2	9	2
11th „ - - - †	7	—	7	5
12th „ - - - †	3	—	6	—
13th „ - - - †	—	1	6	6
14th „ - - -	5	2	6	9
15th „ - - - *	2	7	2	7
16th „ - - - †	2	8	2	8
17th „ - - - †	—	6	7	2
19th „ - - -	—	3	7	8
20th „ - - - †	6	1	6	1
21st „ - - -	1	2	4	—
22nd „ - - - †	7	—	7	1
23rd „ - - -	—	8	1	8
24th „ - - -	—	—	9	2
25th „ - - - †	1	2	1	8
26th „ - - -	—	2	5	6
27th „ - - - †	—	8	—	8
28th „ - - -	4	6	5	11
29th „ - - -	—	2	3	1
30th „ - - -	1	4	1	4
31st „ - - -	2	6	3	10
32nd „ - - -	—	—	2	6
33rd „ - - -	3	2	3	2
34th „ - - -	6	10	7	6
35th „ - - - *	9	2	6	10
36th „ - - - †	4	—	4	—
37th „ - - - *	6	10	8	7
38th „ - - -	—	—	7	—
39th „ - - - *	4	—	4	—
40th „ - - -	2	4	3	2
41st „ - - -	7	2	7	10
Total -	130	3	196	7

Average length of service of 40 wing officers with their present regiments, 3 years 3 months ; as wing officers 4 years 11 months.

* Officers who rose in the regiment.

† Officers of broken-up and British regiments.

SERVICE of Adjutants of Madras Infantry with their present Corps, and as Adjutants, reckoning from date of Reorganization, viz., 1st November 1865.

	With Regiment.		As Adjutants.	
	Years.	Months.	Years.	Months.
1st Infantry - - -	6	10	4	1
2nd „ - - - †	4	8	4	8
3rd „ - - - †	9	2	7	5
4th „ - - - †	7	4	7	4
5th „ - - - †	1	—	1	—
6th „ - - - †	9	2	8	2
7th „ - - - †	7	—	—	6
8th „ - - - †	6	8	6	3
9th „ - - - †	9	2	6	3
10th „ - - - †	9	2	3	2
11th „ - - - †	6	1	3	1
12th „ - - -	7	10	7	10
13th „ - - - †	9	2	7	6
14th „ - - - *	9	2	9	2
15th „ - - - †	9	2	9	2
16th „ - - -	3	6	3	6
17th „ - - - *	9	2	7	10
19th „ - - - †	—	7	—	7
20th „ - - - *	9	2	6	9
21st „ - - - *	9	2	5	3
22nd „ - - - †	7	6	3	—
23rd „ - - -	6	3	6	3
24th „ - - - †	9	2	5	2
25th „ - - - †	3	10	2	—
26th „ - - - *	9	2	6	1
27th „ - - -	7	—	7	—
28th „ - - - †	4	1	4	1
29th „ - - -	8	5	8	5
30th „ - - - *	4	2	4	2
31st „ - - - †	6	7	6	7
32nd „ - - - †	6	7	6	7
33rd „ - - - †	8	6	—	10
34th „ - - - †	8	6	8	6
35th „ - - - †	9	2	2	9
36th „ - - - †	1	8	1	—
37th „ - - - †	6	5	6	5
38th „ - - - †	4	9	4	9
39th „ - - -	4	2	4	2
40th „ - - - †	9	2	7	6
41st „ - - -	4	7	4	7
Total - -	272	10	209	4

Average length of service of 40 adjutants with their present regiments, 6 years 10 months; as adjutants, 5 years 3 months.

* Officers who rose in the regiment.

† Officers of broken-up and British regiments, and general list officers.

SERVICE of Quartermasters of Madras Infantry with their present Corps and as Quartermasters, reckoning from date of Reorganization, viz., 1st November 1865.

	With Regiments.		As Quartermasters.	
	Years.	Months.	Years.	Months.
1st Infantry - - - †	4	—	4	—
2nd „ - - - *	9	2	7	10
3rd „ - - - †	1	6	1	6
4th „ - - -	3	9	3	9
5th „ - - - †	9	2	5	10
6th „ - - - †	9	2	7	4
7th „ - - - †	—	6	—	6
8th „ - - - †	3	—	3	—
9th „ - - - †	6	3	6	3
10th „ - - - †	—	10	—	10
11th „ - - - †	9	2	3	1
12th „ - - - †	4	3	2	3
13th „ - - - *	9	2	6	2
14th „ - - - †	7	—	7	—
15th „ - - - †	1	5	—	1
16th „ - - - †	—	10	—	10
17th „ - - -	1	—	—	1
19th „ - - - †	4	7	4	7
20th „ - - -	2	6	2	6
21st „ - - - †	8	2	8	—
22nd „ - - - †	9	2	6	6
23rd „ - - - *	9	2	7	3
24th „ - - - †	1	9	1	9
25th „ - - -	3	7	3	7
26th „ - - - †	6	—	5	—
27th „ - - - †	9	2	8	—
28th „ - - - †	6	3	6	3
29th „ - - - †	4	—	4	—
30th „ - - - †	4	8	4	8
31st „ - - - †	7	3	7	3
32nd „ - - - †	5	9	5	9
33rd „ - - - †	1	9	—	6
34th „ - - -	4	1	4	1
35th „ - - -	1	9	—	1
36th „ - - - †	—	3	—	3
37th „ - - - †	9	2	8	3
38th „ - - -	5	7	5	7
39th „ - - - †	3	9	3	9
40th „ - - - †	7	1	7	1
41st „ - - - †	5	9	5	9
Total - -	201	4	170	9

Average length of service of 40 quartermasters with their present regiments, 5 years; as quartermasters, 4 years 3 months.

* Officers who rose in the regiment.

† Officers of broken-up and British regiments, and general list officers.

MEMORANDUM No. 1.

5th Regiment (*a*).—Colonel Smart was removed while in Europe from the 16th Native Infantry, which he commanded from March 1871; previously in command of the 21st regiment, in which he rose.

6th Ditto (*b*).—Colonel Burton was removed from the 4th regiment while in Europe, which he commanded from March 1866; previously in command of the 13th regiment, in which he rose.

12th Ditto (*c*).—Colonel Kempster was removed from the 6th regiment while in Europe, which he commanded from date of reorganization, and in which he rose.

13th Ditto (*d*).—Colonel Lawder was removed from the 24th regiment while in Europe; he previously held command of the 14th regiment.

27th Ditto (*e*).—Colonel Kennedy was removed from the 13th regiment while in Europe, which he commanded from October 1870.

30th Ditto (*f*.)—Colonel Halliday was removed from the 12th regiment while in Europe, which he commanded from date of reorganization, and in which he rose.

38th Ditto (*g*).—Colonel Shakespear was removed from the 9th regiment while in Europe, in which regiment he rose and commanded.

It is understood that Colonels Smart, Kempster, Kennedy, Halliday, and Shakespear will not return again to India.

No. II.

MEMORANDUM of the average Length of Service of Officers with their Regiments, and their Appointments in the Cavalry and Infantry.

MADRAS CAVALRY.

Commandants.

	Years.	Months.
With their Regiments - - - -	7	1
As Commandants - - - - -	7	8

Seconds-in-Command.

With their Regiments - - - -	7	0
As Seconds-in-Command - - - -	6	6

Adjutants.

With their Regiments - - - -	8	
As Adjutants - - - - -	7	3

2nd and 3rd Squadron Officers.

With their Regiments - - - -	8	3

MADRAS INFANTRY.

Commandants.

	Years.	Months.
With their Regiments - - - -	3	6
As Commandants - - - - -	4	6

Seconds-in-Command.

With their Regiments - - -	4	1
As Seconds-in-Command - - - -	4	10

Wing Officers.

With their Regiments - - - -	3	3
As Wing Officers - - - - -	4	11

Adjutants.

With their Regiments - - - -	6	10
As Adjutants - - - - -	5	3

Quartermasters.

With their Regiments - - - -	5	0
As Quartermasters - - - - -	4	3

(Signed) R. C. STEWART, Brigadier-General, Adjutant-General.

Adjutant-General's Office,
Fort St. George,
17th March 1875.

No. 1265, dated Bombay Castle, 2nd April 1875.

From Colonel J. Macdonald, Secretary to the Government of Bombay, Military Department, to the Secretary to the Government of India, Military Department.

Referring to your letter No. 179, dated 3rd March 1875 (Organization—Native Army), I am directed to forward the accompanying return furnished by the Adjutant-General, showing the average length of service of officers with their present regiments and in the appointments they now hold in the cavalry and infantry regiments of the Bombay Army.

Service of Commandants of Bombay Cavalry on 1st January 1875, with their present Regiments and as Commandants.

—	With Regiment.		In Command.	
	Years.	Months.	Years.	Months.
1st Cavalry - - - -	—	$\frac{11}{30}$	—	$\frac{11}{30}$
2nd „ - - - -	8*	6	8	6
3rd „ - - - -	13†	—	13	—
Poona Horse - - - -	14‡	11	14	11
1st Regiment, Sind Horse - -	2	7	2	7
2nd „ „ - -	8	9	3	10
3rd „ „ - -	2	8	2	8
Total - -	50	5	45	6

Average of seven commandants, 7 years 2 months with present Regiments, and 6 years 6 months as commandants.

Service of Seconds-in-Command of Bombay Cavalry Regiments with their present Regiments and as Seconds-in-Command.

—	With Regiment.		As Second-in-Command.	
	Years.	Months.	Years.	Months.
1st Cavalry - - - -	26	1	9	7
2nd „ - - - -	16§	1	—	$\frac{11}{30}$
3rd „ - - - -	1§	5	1	5
Poona Horse - - - -	20	1	17	—
1st Regiment, Sind Horse - -	5	10	5	10
2nd „ „ - -	9	6	3	10
3rd „ „ - -	9	3	3	3
Total - -	88	3	40	11

Average of seven seconds-in-command, 12 years 7 months with present regiments, and 5 years 10 months as seconds-in-command.

Service of Adjutants of Bombay Cavalry with their present Regiments and as Adjutants.

—	With Regiment.		As Adjutant.	
	Years.	Months.	Years.	Months.
1st Cavalry - - - -	12	2	11	—
2nd „ - - - -	11	6	11	—
3rd „ - - - -	3	8	3	8
Poona Horse - - - -	11	10	11	10
1st Regiment, Sind Horse - -	6	2	3	6
2nd „ „ - -	5	3	4	6
3rd „ „ - -	1	—	1	—
Total - -	51	7	46	6

Average of seven adjutants, 7 years 4 months with present regiments, and 6 years 8 months as adjutants.

* Colonel MacGregor had previously served with the regiment for about 21 years.
† Colonel Graves had previously served with the regiment for about 24 years.
‡ Colonel Westropp had previously served with the Poona Horse for about 8 years.
§ Each of these officers had served several years with these regiments previous to their last joining them.

SERVICE of 2nd and 3rd Squadron Officers of Bombay Cavalry with their present Regiments.

	With Regiment.	
	Years.	Months.
1st Cavalry	20	3
	11	6
2nd „	11	5
	10	2
3rd „	13	2
	9	8
Poona Horse	7	10
	13	8
1st Regiment, Sind Horse	6	5
	8	9
2nd „ „	9	7
	4	2
3rd „	4	3
	4	6
Total	135	4

Average of 14 second and third squadron officers with their present regiments, 9 years and 8 months.

SERVICE of Commandants of Bombay Infantry Regiments with their Corps and as Commandants.

	With Regiment.		In Command.	
	Years.	Months.	Years.	Months.
1st Infantry	13*	—	13	—
2nd „	1*	7	1	7
3rd „	—	1	—	1
4th „	7*	9	1	5
5th „	15*	—	12	2
6th „	—*	10	—	—
7th „	—	—	—	—
8th „	7	9	7	9
9th „	11	—	—	—
10th „	30	—	1	9
11th „	10	4	4	3
12th „	*6	7	6	7
13th „	1	6	—	5
14th „	7	9	7	9
15th „	1	6	1	6
16th „	3	2	3	2
17th „	34	4	12	11
18th „	2	7	—	—
19th „	4	9	3	7
20th „	—	3	—	3
21st „	—	3	—	3
22nd „	3	2	3	2
23rd „	2	11	2	11
24th „	4	3	4	3
25th „	31	7	8	9
26th „	—	7	—	7
27th „	22	8	14	2
28th „	5	4	5	4
29th „	8	4	7	11
30th „	16	4	16	4
Total	255	2	141	10

Average of 30 commandants, 8 years 6 months with their present regiments, and 4 years 8 months as commandants.

* These officers (who belonged to the cadres of these regiments) had served several years with the corps previous to their last rejoining them from other employment.

SERVICE of Seconds-in-Command of Bombay Infantry Regiments with their present Corps and as Seconds-in-Command.

	With Regiment.		As Seconds-in-Command.	
	Years.	Months.	Years.	Months.
1st Infantry	31	—	11	—
2nd „	17	7	1	4
3rd „	8	4	8	1
4th „	4*	8	—	3
5th „	5	10	4	2
6th „	—	—	—	—
7th „	8	11	8	11
8th „	31	3	11	—
9th „	26	9	—	1
10th „	27	10	1	9
11th „	4*	3	4	3
12th „	1	9	1	9
13th „	—*	—	—	—
14th „	29	9	—	9
15th „	11*	7	11	—
16th „	11*	—	11	—
17th „	—	3	—	3
18th „	10	10	—	—
19th „	11*	—	8	4
20th „	2	1	2	1
21st „	—	—	—	—
22nd „	3	9	3	9
23rd „	31	8	8	2
24th „	28	9	5	8
25th „	8	8	8	8
26th „	2	9	2	9
27th „	7	11	7	11
28th „	28	6	10	—
29th „	9	—	7	11
30th „	16	4	9	8
Total	382	—	150	6

Average of 30 seconds-in-command, 12 years 8 months with their present regiments, and 5 years as seconds-in-command.

* These officers (who belonged to the cadres of these Regiments) had served several years with the corps previous to their last rejoining them from other employment.

SERVICE of Wing Officers of Bombay Infantry with their present Regiments.

	With Regiment.	
	Years.	Months.
1st Infantry	11	—
2nd „	1*	3
3rd „	21	1
4th „	—	2
5th „	21	1
6th „	12*	1
7th „	21	2
8th „	3	2
9th „	—*	1
10th „	25	10
11th „	27	4
12th „	4*	1
13th „	23	7
14th „	—	—
15th „	4*	3
16th „	—	—
17th „	21	9
18th „	1*	8
19th „	—	—
20th „	5*	4
21st „	11	9
22nd „	4	2
23rd „	7*	5
24th „	22	9
25th „	—	10
26th „	4	6
27th „	7	6
28th „	23	11
29th „	7	11
30th „	9	6
Total	305	2

Average of 30 wing officers with their present regiments, 10 years and 2 months.

* These officers (who belong to the cadres of these regiments) had served several years with the corps previous to their last rejoining them from other employment.

SERVICE of Adjutants of Bombay Infantry with their present Corps and as Adjutants.

	With Regiment.		As Adjutants.	
	Years.	Months.	Years.	Months.
1st Infantry - - -	1	2	1	2
2nd „ - - - -	13	1	3	8
3rd „ - - - -	2	6	2	6
4th „ - - - -	6	8	5	2
5th „ - - - -	—	5	—	5
6th „ - - - -	3	—	3	—
7th „ - - - -	11*	2	11	—
8th „ - - - -	3	3	3	3
9th „ - - - -	11*	5	11	5
10th „ - - - -	2	3	2	3
11th „ - - - -	11	2	5	10
12th „ - - - -	14	3	7	10
13th „ - - - -	2	11	2	11
14th „ - - - -	6	3	6	3
15th „ - - - -	7	7	5	8
16th „ - - - -	6	4	5	1
17th „ - - - -	Vacant			
18th „ - - - -	2	6	—	3
19th „ - - - -	15	8	9	7
20th „ - - - -	17	6	7	10
21st „ - - - -	3	9	3	9
22nd „ - - - -	5	—	3	6
23rd „ - - - -	5	10	4	10
24th „ - - - -	3	8	2	10
25th „ - - - -	16	5	3	11
26th „ - - - -	10	11	7	5
27th „ - - - -	3	4	3	4
28th „ - - - -	8	11	7	6
29th „ - - - -	6	5	6	5
30th „ - - - -	4	4	4	4
Total -	207	8	142	11

Average of 29 adjutants, 7 years 2 months with their present regiments, and 4 years 11 months as adjutants.

* These officers (who belonged to the cadres of these regiments) had served some time with these corps previous to their last rejoining them from other employment.

SERVICE of Quartermasters of Bombay Infantry with their present Corps and as Quartermasters.

	With Regiment.		As Quartermasters.	
	Years.	Months.	Years.	Months.
1st Infantry - - -	17	6	10	—
2nd „ - - -	7	8	1	11
3rd „ - - -	5	6	5	6
4th „ - - -	10	7	10	3
5th „ - - -	—	5	—	5
6th „ - - -	9	—	5	8
7th „ - - -	3	7	3	—
8th „ - - -	17	6	4	1
9th „ - - -	11	2	11	2
10th „ - - -	17	6	8	10
11th „ - - -	5	4	4	6
12th „ - - -	7	5	1	2
13th „ - - -	12	6	6	3
14th „ - - -	4*	1	4	1
15th „ - - -	3	8	2	11
16th „ - - -	—	—	—	—
17th „ - - -	9	7	7	7
18th „ - - -	14	2	11	—
19th „ - - -	8	7	7	7
20th „ - - -	4*	10	4	10
21st „ - - -	7	10	6	11
22nd „ - - -	12	6	4	11
23rd „ - - -	9	10	9	10
24th „ - - -	3	11	3	11
25th „ - - -	4	11	4	11
26th „ - - -	3	7	3	7
27th „ - - -	3	5	3	5
28th „ - - -	3	3	2	9
29th „ - - -	13	7	4	1
30th „ - - -	2	10	2	10
Total -	236	3	157	11

Average of 30 quartermasters 7 years 10 months with their present regiments and 5 years 3 months as quartermasters.

* These officers (who belonged to the cadres of these regiments) had served some time with these corps previous to their last rejoining them from other employment.

MEMORANDUM of the average Length of Service of Officers with their Regiments and in their Appointments in the Cavalry and Infantry of the Bombay Army.

BOMBAY CAVALRY.

	Years.	Months.
Commandants.		
With their regiments - - - - -	7	2
As commandants - - - - -	6	6
Seconds-in-Command.		
With their regiments - - - - -	12	7
As second-in-command - - - -	5	10
Adjutants.		
With their regiments - - - - -	7	4
As adjutants - - - - -	6	8
2nd and 3rd Squadron Officers.		
With their regiments - - - - -	9	8

BOMBAY INFANTRY.

	Years.	Months.
Commandants.		
With their regiments - - - - -	8	6
*As commandants - - - - -	4	8
Seconds-in-Command.		
With their regiments - - - - -	12	8
As second-in-command - - - -	5	0

* The late retirements which have caused vacancies in the commands of regiments have brought down the average considerably.

Wing Officers.

	Years.	Months.
With their regiments - - - - -	10	2

Adjutants.

With their regiments - - - - -	7	2
As adjutants - - - - - -	4	11

Quartermasters.

With their regiments - - - - -	7	10
As quartermasters - - - - -	5	3

OFFICERS RETURNS.

No. 1106 A., dated Simla, the 9th April 1875.

FROM Colonel T. Rattray, C.B., C.S.I., Officiating Deputy Adjutant-General, to Colonel H. K. Burne, C.B., Secretary to the Government of India, Military Department.

IN compliance with the request contained in your letter, No. 177 (Organization, Native Army), dated the 3rd ultimo, I have the honor to transmit herewith the returns therein called for showing the average length of service of officers with their present regiments and in the appointments which they now hold in the Cavalry and Infantry Corps of the Bengal Army.

SERVICE of Commandants of Bengal Cavalry on 1st January 1875 with their present Regiments, and as Commandants.

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiments.		In Command.		
	Years.	Months.	Years.	Months.	
Colonel W. R. E. Alexander, 1st Bengal Cavalry.	11	—	7	5	On furlough.
Lieutenant-Colonel O. Wilkinson, 2nd Bengal Cavalry.	5	—	5	—	—
Colonel G. W. M. Hall, C.B., 3rd Bengal Cavalry.	28	10	17	3	—
Colonel G. C. Hankin, 4th Bengal Cavalry.	8	5	8	5	—
Lieutenant-Colonel C. J. S. Gough, 5th Bengal Cavalry.	10	7	10	7	—
Colonel J. F. Richardson, 6th Bengal Cavalry.	24	11	20	9	On furlough.
Colonel L. J. Farquharson, 7th Bengal Cavalry.	7	4	7	4	—
Colonel W. J. Ward, 8th Bengal Cavalry.	9	7	3	3	—
Lieutenant-Colonel H. L. Campbell, 9th Bengal Cavalry.	10	4	10	4	—
Colonel C. H. Palliser, 10th Bengal Cavalry.	15	8	15	8	—
Lieutenant-Colonel H. H. Gough, 12th Bengal Cavalry.	7	5	7	5	—
Major R. C. Low, 13th Bengal Cavalry.	16	9	3	4	On furlough.
Colonel J. I. Murray, 14th Bengal Cavalry.	16	6	16	6	—
Major G. A. Prendergast, 15th Bengal Cavalry.	10	5	7	6	On furlough.
Captain R. Topham, 16th Bengal Cavalry.	14	8	14	8	—
Lieutenant-Colonel F. W. Graham, 17th Bengal Cavalry.	2	—	2	—	—
Colonel F. H. Smith, 18th Bengal Cavalry	16	4	16	4	On furlough.
Lieutenant-Colonel W. Fane, 19th Bengal Cavalry.	15	—	15	—	—
Total - - -	230	9	188	9	

Average of 18 commandants 12 years and 10 months with present regiments and 10 years and 6 months as commandants.

SERVICE of Seconds-in-Command of Bengal Cavalry Regiments on 1st January 1875 with their present Regiments and as Seconds-in-Command.

Rank, Names, and Corps.	Length of Service.				Remarks.
	In Regiment.		As Second in Command.		
	Years.	Months.	Years.	Months.	
Lieutenant-Colonel R. Jenkins, 1st Bengal Cavalry.	7	—	7	—	Officiating Commandant.
Major C. W. Campbell, 2nd Bengal Cavalry.	10	5	4	—	—
Lieutenant-Colonel C. F. Packe, 3rd Bengal Cavalry.	15	1	10	7	On furlough.
Major M. M. Prendergast, 4th Bengal Cavalry.	11	5	11	—	—
Major H. R. Osborn, 5th Bengal Cavalry.	20	—	8	1	—
Major G. A. A. Baker, 6th Bengal Cavalry.	12	9	3	9	Officiating Commandant.
Lieutenant-Colonel F. C. J. Brownlow, 7th Bengal Cavalry.	9	8	9	8	—
Captain H. Chapman, 8th Bengal Cavalry.	12	8	3	2	—
Major H. T. Oldfield, 9th Bengal Cavalry.	10	10	10	10	—
Lieutenant-Colonel A. T. Armstrong, 10th Bengal Cavalry.	10	10	10	10	—
Major R. E. Boyle, 11th Bengal Cavalry.	7	—	4	4	Officiating Commandant.
Colonel P. S. Yorke, 12th Bengal Cavalry.	12	2	6	6	—
Captain W. H. Macnaghten, 13th Bengal Cavalry.	6	7	3	4	Officiating Commandant.
Lieutenant-Colonel R. Chalmers, 14th Bengal Cavalry.	16	3	11	—	On furlough.
Major W. Musgrave, 15th Bengal Cavalry.	14	3	7	6	Officiating Commandant.
„ J. Upperton, 16th Bengal Cavalry.	2	—	2	—	—
„ T. J. Watson, 17th Bengal Cavalry.	15	8	9	9	On furlough.
Captain T. R. Davidson, 18th Bengal Cavalry.	14	7	1	9	Officiating Commandant.
Lieutenant-Colonel H. Melvill, 19th Bengal Cavalry.	9	2	9	2	—
Total - - -	218	4	134	3	

Average of 19 seconds-in-command 11 years and 6 months with present regiments and 7 years and 1 month as second-in-command.

SERVICE of Adjutants of Bengal Cavalry Regiments on 1st January 1875 with their present Regiments and as Adjutants.

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		As Adjutants.		
	Years.	Months.	Years.	Months.	
Captain A. R. Chapman, 1st Bengal Cavalry	11	9	11	9	Officiating Third Squad. Officer.
Captain C. E. Salkeld, 2nd Bengal Cavalry.	7	8	3	3	—
Lieutenant G. H. Elliott, 3rd Bengal Cavalry.	3	6	3	4	Officiating Third Squad. Officer.
Captain W. R. Hamilton, 4th Bengal Cavalry.	15	—	6	6	—
Captain J. P. D. Vanrenen, 5th Bengal Cavalry.	3	11	3	11	—
Captain H. A. Fletcher, 6th Bengal Cavalry.	12	3	3	2	On furlough.
Captain E. Hay, 7th Bengal Cavalry.	10	7	7	5	—
Lieutenant J. L. Aberigh-Mackay, 8th Bengal Cavalry.	4	8	4	8	—
Captain D. T. H. Sampson 9th Bengal Cavalry.	14	1	14	1	Officiating Third Squad. Officer.
Captain H. C. Greenaway, 10th Bengal Cavalry.	9	11	6	7	On furlough.
Captain G. R. J. Shakespear, 11th Bengal Cavalry.	9	10	7	5	Officiating Third Squad. Officer.
Captain M. J. Moore, 12th Bengal Cavalry.	5	10	5	10	—
Captain D. H. Thompson, 13th Bengal Cavalry.	8	10	6	—	—
Captain R. Eardley Wilmot, 14th Bengal Cavalry.	10	3	7	6	—
Lieutenant S. D. Turnbull, 15th Bengal Cavalry.	6	4	4	6	On furlough.
Captain A. W. R. Becher, 16th Bengal Cavalry.	7	6	5	7	—
Captain T. M. B. Glascock, 17th Bengal Cavalry.	15	9	9	9	On furlough.
Captain J. B. B. Dickson, 18th Bengal Cavalry.	9	2	1	9	Do.
Captain W. W. Biscoe, 19th Bengal Cavalry.	12	9	7	6	—
Tota - -	179	7	117	6	

Average of 19 adjutants 9 years and 5 months with present regiments and 6 years and 2 months as adjutants.

SERVICE of 2nd and 3rd Squadron Officers of Bengal Cavalry with their present Regiments.

Rank, Names, and Corps.	Length of Service.		Remarks.
	With Regiment.		
	Years.	Months.	
Major G. C. Thomson, 2nd Squadron Officer, 1st Bengal Cavalry.	16	5	Officiating second-in-command.
Captain M. Clementi, 3rd Squadron Officer, 1st Bengal Cavalry.	9	3	Officiating in Judge Avdocate General's Department.
Captain F. Knowles, 2nd Squadron Officer, 2nd Bengal Cavalry.	13	—	—
Captain H. C. Kemble, 3rd Squadron Officer, 2nd Bengal Cavalry.	11	3	On furlough.
Brevet-Major A. R. D. Mackenzie, 2nd Squadron Officer, 3rd Bengal Cavalry.	11	5	Officiating second-in-command.
Carried over - -			

Rank, Names, and Corps.	Length of Service. With Regiment. Years.	Months.	Remarks.
Brought forward - -			
Major B. Cracroft, 3rd Squadron Officer, 3rd Bengal Cavalry.	14	6	On furlough.
Major E. H. C. Simpson, 2nd Squadron Officer, 4th Bengal Cavalry.	13	6	—
Captain F. P. W. Freeman, 3rd Squadron Officer, 4th Bengal Cavalry.	12	5	On furlough.
Captain H. A. Shakespear, 2nd Squadron, Officer, 5th Bengal Cavalry.	12	3	—
Captain R. B. Graham, 3rd Squadron Officer 5th Bengal Cavalry.	8	3	—
Captain R. M. Jennings, 2nd Squadron Officer, 6th Bengal Cavalry.	11	10	Officiating second-in-command.
Captain E. H. E. Kauntze, 3rd Squadron Officer, 6th Bengal Cavalry.	8	—	Officiating 2nd Squadron Officer.
Lieutenant-Colonel C. H. Barchard, 2nd Squadron Officer, 7th Bengal Cavalry.	9	6	—
Captain H. C. Creak, 3rd Squadron Officer, 7th Bengal Cavalry.	10	10	—
Captain A. F. Lindsay, 2nd Squadron Officer, 8th Bengal Cavalry.	11	—	—
Captain J. A. McNeale, 3rd Squadron Officer, 8th Bengal Cavalry.	9	8	—
Captain T. Dayrell, 2nd Squadron Officer, 9th Bengal Cavalry.	15	8	—
Captain A. P. Palmer, 3rd Squadron Officer, 9th Bengal Cavalry.	5	3	With Duffla Field Force.
Captain O. Barnes, 2nd Squadron Officer, 10th Bengal Cavalry.	10	3	—
Captain A. England, 3rd Squadron Officer, 10th Bengal Cavalry.	15	3	—
Major A. H. Prinsep, 2nd Squadron Officer, 11th Bengal Cavalry.	3	3	Officiating second-in-command
Captain W. I. Bax, 3rd Squadron Officer, 11th Bengal Cavalry.	9	3	Officiating 2nd Squadron Officer
Captain H. A. McNair, 2nd Squadron Officer, 12th Bengal Cavalry.	9	6	On furlough.
Captain J. H. Green, 3rd Squadron Officer, 12th Bengal Cavalry.	7	7	Officiating 2nd Squadron Officer.
Captain C. R. Pennington, 2nd Squadron Officer, 13th Bengal Cavalry.	14	2	Officiating second-in-command.
Captain H. E. Ryves, 3rd Squadron Officer, 13th Bengal Cavalry.	12	6	Officiating 2nd Squadron Officer.
Captain R. C. W. Mitford, 2nd Squadron Officer, 14th Bengal Cavalry.	7	6	—
Captain C. S. De F. Roche, 3rd Squadron Officer, 14th Bengal Cavalry.	5	3	—
Major J. Angelo, 2nd Squadron Officer, 15th Bengal Cavalry.	5	—	Officiating second-in-command.
Major E. D. H. Vibert, 3rd Squadron Officer, 15th Bengal Cavalry.	7	2	Officiating 2nd Squadron Officer.
Captain R. M. Clifford, 2nd Squadron Officer, 16th Bengal Cavalry.	11	—	—
Captain G. C. Ross, 3rd Squadron Officer, 16th Bengal Cavalry.	6	7	On furlough.
Major G. H. W. Hoggan, 2nd Squadron Officer, 17th Bengal Cavalry.	14	5	Officiating second-in-command.
Captain E. G. Newnham, 3rd Squadron Officer, 17th Bengal Cavalry.	11	—	Officiating 2nd Squadron Officer.
Captain H. C. Marsh, 2nd Squadron Officer, 18th Bengal Cavalry.	14	7	Officiating second-in-command.
Captain R. Wheeler, 3rd Squadron Officer, 18th Bengal Cavalry.	9	8	Officiating 2nd Squadron Officer.
Captain A. G. Owen, 2nd Squadron Officer, 19th Bengal Cavalry.	2	—	—
Captain W. Loch, 3rd Squadron Officer, 19th Bengal Cavalry.	9	10	On furlough.
Total -	389	9	

Average of 38 second and third squadron officers with their present regiments 10 years and 3 months.

SERVICE of Commandants of Bengal Native Infantry Regiments with their Corps and as Commandants.

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		In Command.		
	Years.	Months.	Years.	Months.	
Colonel J. R. McMullin, 1st Native Infantry	8	4	7	10	—
„ W. B. Shawe, 2nd Native Infantry	10	8	1	9	—
„ G. A. St. P. Fooks, 3rd Native Infantry.	9	9	7	5	—
Colonel H. C. Anderson, 4th Native Infantry	3	2	3	2	—
Lieutenant-Colonel W. J. P. Barlow, 5th Native Infantry.	11	—	1	10	—
Colonel G. Holroyd, 6th Native Infantry -	36	3	8	8	—
Lieutenant-Colonel F. J. Stephenson, 7th Native Infantry.	10	5	2	10	—
Colonel T. A. Carey, 8th Native Infantry -	3	5	3	5	—
Lieutenant-Colonel W. H. Hawes, 9th Native Infantry.	28	1	—	2	—
Colonel C. Lyons Montgomery, 10th Native Infantry.	33	2	7	2	—
Colonel C. F. G. Lamb, 11th Native Infantry	—	10	—	10	On furlough.
„ H. B. Stevens, 12th Native Infantry	16	9	16	9	—
„ H. King, 13th Native Infantry -	13	2	13	2	On furlough.
„ C. C. G. Ross, 14th Native Infantry	13	7	13	7	Do.
Lieutenant-Colonel R. Barter, 15th Native Infantry.	12	11	12	11	—
Lieutenant-Colonel W. B. Girdlestone, 16th Native Infantry.	12	—	3	5	—
Colonel J. Marquis, 17th Native Infantry -	16	6	6	—	—
Major W. Winson, 18th Native Infantry -	13	7	13	7	—
Lieutenant-Colonel J. F. Stafford, 19th Native Infantry.	17	5	17	5	—
Lieutenant-Colonel R. G. Rogers, 20th Native Infantry.	13	4	3	2	On furlough.
Colonel J. C. Thelwall, 21st Native Infantry.	13	8	13	8	—
Colonel J. J. O'Bryen, 22nd Native Infantry.	10	3	2	3	On furlough.
Major A. A. Currie, 23rd Native Infantry -	11	—	4	2	—
Colonel G. N. Cave, 24th Native Infantry -	17	5	17	5	On furlough.
„ H. D. Manning 25th Native Infantry.	6	—	6	—	—
Lieutenant-Colonel J. Williamson, 26th Native Infantry.	17	—	17	—	—
Colonel J. Doran, 27th Native Infantry -	17	5	17	5	—
„ J. Smith, 28th Native Infantry -	6	11	1	10	—
Lieutenant-Colonel J. J. H. Gordon, 29th Native Infantry.	13	7	13	7	—
Lieutenant-Colonel T. W. R. Boisragon, 30th Native Infantry.	13	4	13	4	—
Colonel E. G. Langmore, 31st Native Infantry.	5	8	—	1	—
Colonel W. D. Morgan, 32nd Native Infantry.	15	1	15	1	—
Lieutenant-Colonel E. H. Langmore, 33rd Native Infantry.	17	—	17	—	On furlough.
Colonel R. P. Anderson, 34th Native Infantry.	13	3	13	3	—
Colonel J. L. Nation, 35th Native Infantry	3	5	3	5	On furlough.
„ P. G. Scot, 36th Native Infantry -	13	—	7	8	—
„ J. Nisbett, 37th Native Infantry -	14	8	14	8	On furlough.
„ G. W. Fraser, 39th Native Infantry.	12	8	12	8	—
Lieutenant-Colonel E. Dandridge, 40th Native Infantry.	16	6	16	6	On furlough.
Colonel H. S. Obbard, 41st Native Infantry	13	4	13	4	—
Lieutenant-Colonel J. P. Sherriff, 42nd Native Infantry.	3	2	1	4	—
Carried over -					

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		In Command.		
	Years.	Months.	Years.	Months.	
Brought forward - -					
Lieutenant-Colonel C. D. S. Clarke, 43rd Native Infantry.	8	6	2	9	—
Colonel J. M. Nuttall, 44th Native Infantry	6	10	2	8	—
„ C. B. Basden, 45th Native Infantry	9	5	4	1	On furlough.
„ J. S. Rawlins, 1st Goorkhas -	10	5	6	4	—
„ H. T. Macpherson, 2nd Goorkhas -	13	10	13	10	—
„ A. Paterson, 3rd Goorkhas -	10	—	2	9	—
Lieutenant-Colonel J. A. Tytler, 4th Goorkhas.	11	2	11	2	On furlough.
Total - -	608	10	410	4	

Average of 48 commandants of Native Infantry regiments with their present corps 12 years and 8 months, and 8 years and 6 months as commandants.

SERVICE of Seconds-in-Command of Infantry Regiments with their present Corps and as Seconds-in-Command.

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		As Second-in-Command.		
	Years.	Months.	Years.	Months.	
Lieutenant-Colonel F. J. Craigie, 1st Native Infantry.	25	9	8	8	—
Lieutenant-Colonel F. A. Dickins, 2nd Native Infantry.	4	9	—	9	On furlough.
Colonel R. T. Leigh, 3rd Native Infantry -	7	3	7	3	Do.
Lieutenant-Colonel F. Duffin, 4th Native Infantry.	5	7	5	7	—
Major E. Venour, 5th Native Infantry -	3	1	1	10	—
Colonel W. Q. Pogson, 6th Native Infantry	35	4	9	8	—
Major H. R. B. Worsley, 7th Native Infantry.	21	10	2	10	—
Lieutenant-Colonel A. Taylor, 8th Native Infantry.	11	—	11	—	—
Lieutenant-Colonel T. E. Webster, 9th Native Infantry.	26	8	—	2	—
Captain R. F. Firth, 10th Native Infantry -	19	7	1	—	—
Major P. H. F. Harris, 11th Native Infantry.	2	10	2	9	—
Colonel R. H. Price, 12th Native Infantry -	13	6	13	6	—
Lieutenant-Colonel R. S. Moseley, 13th Native Infantry.	6	7	6	7	Officiating commandant.
Major L. H. Williams, 14th Native Infantry	10	7	—	3	Do.
Colonel G. H. Thompson, 15th Native Infantry.	5	3	5	3	—
Major F. B. Foote, 16th Native Infantry -	9	8	4	6	On furlough.
Colonel F. G. Stainforth, 17th Native Infantry.	6	—	6	—	Do.
Major F. Allen, 18th Native Infantry -	18	3	6	7	Do.
Lieutenant-Colonel J. Ruggles 19th Native Infantry.	12	5	12	5	—
Major H. W. Gordon, 20th Native Infantry	15	3	3	2	Officiating commandant.
Carried over - -					

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		As Second-in-Command.		
	Years.	Months.	Years.	Months.	
Brought forward - -					
Lieutenant-Colonel J. Hudson, 21st Native Infantry.	7	3	7	3	—
Lieutenant-Colonel B. T. Stafford, 22nd Native Infantry.	15	2	—	9	On furlough.
Major H. Fellowes, 23rd Native Infantry -	3	1	3	1	—
Lieutenant-Colonel F. B. Norman, 24th Native Infantry.	6	10	6	10	Officiating commandant.
Major J. W. Hoggan, 25th Native Infantry	17	5	17	5	—
Lieutenant-Colonel C. M. Longmore, 26th Native Infantry.	11	8	11	8	On furlough.
Lieutenant-Colonel F. D. Ogilvie, 27th Native Infantry.	11	—	—	—	Do.
Lieutenant-Colonel W. C. Hamilton, 28th Native Infantry.	8	4	1	10	—
Lieutenant-Colonel G. G. Cunliffe, 29th Native Infantry.	5	8	5	8	—
Major R. D. Campbell, 30th Native Infantry.	11	—	—	1	—
Major H. L. C. Bernard, 31st Native Infantry.	9	8	—	1	—
Lieutenant-Colonel G. A. Williams, 32nd Native Infantry.	6	2	6	2	—
Major T. W. Rutherfurd, 33rd Native Infantry.	10	1	—	—	On furlough.
Lieutenant-Colonel C. C. Dandridge, 34th Native Infantry.	15	10	15	10	Do.
Major G. C. Rowcroft, 35th Native Infantry	12	8	3	5	—
Lieutenant-Colonel A. A. Bruce, 37th Native Infantry.	9	8	—	10	Officiating commandant.
Lieutenant-Colonel H. N. Hodgson, 38th Native Infantry.	10	3	10	3	Do.
Lieutenant-Colonel H. M. Wemyss, 39th Native Infantry.	7	8	7	8	—
Lieutenant-Colonel E. H. Scott, 40th Native Infantry.	7	—	7	—	Officiating commandant.
Lieutenant-Colonel T. Taylor, 41st Native Infantry.	4	10	4	10	On furlough.
Lieutenant-Colonel A. Tulloch, 42nd Native Infantry.	1	5	1	4	—
Lieutenant-Colonel A. Cory, 44th Native Infantry.	1	10	1	10	—
Major F. M. Armstrong, 45th Native Infantry.	10	6	4	—	Officiating commandant.
Lieutenant-Colonel E. B. Clay, 1st Goorkhas	8	10	6	4	On furlough.
„ „ D. Macintyre, 2nd Goorkhas.	16	1	14	8	—
Lieutennat-Colonel H. H. Lyster, 3rd Goorkhas.	11	4	2	9	Ditto.
Lieutenant-Colonel J. P. Turton, 4th Goorkhas.	10	8	7	—	Officiating commandant.
Total - -	513	1	253	4	

Average of 47 seconds-in-command of infantry with their present regiments 10 years and 11 months, as seconds-in-command 5 years and 4 months.

LENGTH of Service with their present Regiments of Wing Officers of Bengal Infantry.

Rank, Names, and Corps.	Length of Service. With Regiment. Years.	Months.	Remarks.
Major L. H. P. de H. Larpent, 1st Native Infantry.	7	6	——
Major T. N. Baker, 2nd Native Infantry -	—	2	On furlough.
Colonel R. Blair, 3rd Native Infantry -	19	1	Officiating commandant.
Major W. C. Mitchel, 4th Native Infantry -	11	4	On furlough.
Captain H. A. Lewes, 5th Native Infantry -	6	—	——
„ R. H. Inglis, 6th Native Infantry -	16	4	——
„ F. C. W. Drummond, 7th Native Infantry.	10	5	Officiating quartermaster.
Major R. Smith, 8th Native Infantry -	8	—	On furlough.
Captain F. F. J. Toke, 9th Native Infantry -	17	8	——
„ W. D. Palmer, 10th Native Infantry -	1	3	——
Major C. M. Bushby, 11th Native Infantry -	4	—	——
„ W. Macdonald, 12th Native Infantry -	9	7	On furlough.
„ W. Playfair, 13th Native Infantry -	6	7	Officiating second-in-command.
Captain F. H. Woodgate, 14th Native Infantry	12	1	On furlough.
Major G. R. Hennessy, 15th Native Infantry -	6	—	——
„ W. G. Cubitt, 16th Native Infantry -	2	10	Officiating second-in-command.
„ R. J. Walker, 17th Native Infantry -	13	2	On furlough.
„ H. De Brett, 18th Native Infantry -	6	7	Officiating second-in-command.
„ A. Copland, 19th Native Infantry -	6	11	On furlough.
„ J. Bartleman, 20th Native Infantry -	14	11	Do.
„ J. M. Stewart, 21st Native Infantry -	4	10	Do.
Captain C. H. Bridges, 22nd Native Infantry -	14	11	Officiating commandant.
„ A. D. Anderson, 23rd Native Infantry	9	3	On furlough.
Lieutenant-Colonel E. J. McNair, 24th Native Infantry.	2	2	Officiating as Deputy Assistant Adjutant-General for Musketry.
Lieutenant-Colonel N. Barton, 25th Native Infantry.	12	2	——
Major M. G. Smith, 26th Native Infantry -	10	10	On furlough.
Captain H. H. Birch, 27th Native Infantry -	14	11	Officiating second-in-command.
„ G. S. Hills, 28th Native Infantry -	14	4	——
„ E. Beddy, 29th Native Infantry -	17	4	——
„ H. W. Webster, 30th Native Infantry	14	8	——
„ F. Tweddell, 31st Native Infantry -	10	4	——
Major T. N. Walker, 32nd Native Infantry -	8	—	——
Captain S. C. MacTier, 33rd Native Infantry -	9	6	Officiating second-in-command.
Major G. J. Pasley, 34th Native Infantry -	10	11	Do.
„ G. V. Fosbery, 35th Native Infantry -	3	5	——
Lieutenant-Colonel R. D. Griffin, 36th Native Infantry.	5	7	Officiating second-in-command.
Captain F. A. Montriou, 37th Native Infantry	13	7	Do.
Major H. L. A. Tottenham, 38th Native Infantry.	13	1	Do.
Captain F. Gellie, 39th Native Infantry -	16	10	——
„ H. Morton, 40th Native Infantry -	14	10	Officiating second-in-command.
Major W. C. B. Ryan, 41st Native Infantry -	10	11	Do.
Captain R. A. Wauchope, 42nd Native Infantry.	—	1	——
Captain H. M. Evans, 43rd Native Infantry -	3	10	Officiating second-in-command.
Major E. Lightfoot, 44th Native Infantry -	12	8	——
Captain A. D. C. Inglis, 45th Native Infantry	10	6	——
Lieutenant-Colonel R. S. Hill, 1st Goorkhas -	18	—	Officiating second-in-command.
Captain A. Battye, 2nd Goorkhas - -	15	8	——
„ G. C. Gregory, 3rd Goorkhas -	12	6	——
Major F. F. Rowcroft, 4th Goorkhas - -	8	11	Officiating second-in-command.
Total - - -	495	—	

Average length of service with their present regiments of 49 wing officers 10 years and 1 month.

SERVICE of Adjutants of Bengal Infantry with their present Corps and as Adjutants.

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		As Adjutant.		
	Years.	Months.	Years.	Months.	
Lieutenant J. A. Miley, 1st Native Infantry	5	6	3	2	—
Captain J. A. D. Gordon, 2nd Native Infantry.	5	—	4	2	Offg. wing officer.
Captain G. J. Skinner 3rd Native Infantry	9	10	1	6	Officiating station staff officer, Eastern Frontier District.
„ A. B. Douglas, 4th Native Infantry	10	4	10	4	Offg. wing officer.
Captain T. D. Madden, 5th Native Infantry	10	11	10	10	Offg. wing officer, 20th Native Infantry.
„ A. G. Handcock, 6th Native Infantry.	15	9	13	9	—
Lieutenant E. C. Hamilton, 7th Native Infantry.	5	—	3	7	On furlough.
Captain C. J. Walker, 8th Native Infantry -	12	3	5	3	Offg. wing officer.
Lieutenant A. McL. Mills, 10th Native Infantry.	4	11	—	9	—
Captain H. G. Becher, 11th Native Infantry.	6	—	2	9	—
„ A. Oldham, 12th Native Infantry -	4	7	4	7	—
„ W. M. Meacham, 13th Native Infantry.	3	9	3	9	—
Captain J. Cook, 14th Native Infantry -	11	1	5	—	Offg. wing officer and quartermaster.
„ R. E. S. Smith, 15th Native Infantry	5	8	5	8	On furlough.
„ A. B. Clare, 16th Native Infantry -	11	4	6	—	Do.
„ T. Dawes, 17th Native Infantry -	15	—	5	8	Offg. wing officer.
„ A. C. Toker, 18th Native Infantry -	12	—	7	1	Do.
Lieutenant D. E. Gouldsbury, 19th Native Infantry.	2	3	—	3	—
Captain G. M. D. Hill, 20th Native Infantry	9	—	1	10	Offg. second-in-command.
„ J. G. T. Carruthers, 21st Native Infantry.	9	5	6	7	—
Lieutenant G. J. Hare, 22nd Native Infantry	6	10	2	3	Offg. wing officer.
Captain H. Paterson, 23rd Native Infantry	8	7	2	7	On furlough.
„ E. Stedman, 24th Native Infantry -	7	7	5	—	Do.
„ W. V. Ellis, 25th Native Infantry -	5	2	4	10	—
„ A. Fitzgerald, 26th Native Infantry	13	5	9	8	Offg. second-in-command.
„ H. S. Marshall, 28th Native Infantry	13	11	1	9	—
Lieutenant F. R. C. Voyle, 29th Native Infantry.	6	10	4	10	On furlough.
Lieutenant W. G. C. Halket, 30th Native Infantry.	6	9	4	10	Do.
Captain E. W. Smyth, 31st Native Infantry	8	4	8	4	—
„ A. C. W. Crookshank, 32nd Native Infantry.	6	2	6	2	On furlough.
Captain C. S. Pratt, 34th Native Infantry -	10	4	8	7	Do.
„ F. W. Nicolay, 35th Native Infantry	5	4	5	4	—
Lieutenant T. G. Thompson, 36th Native Infantry.	5	4	3	—	—
Lieutenant Sir C. H. Leslie, Bart., 37th Native Infantry.	4	5	1	9	Offg. wing officer.
Lieutenant T. H. Goldney, 38th Native Infantry.	5	5	4	8	—
Captain E. M. Forbes, 39th Native Infantry	4	10	4	10	—
Lieutenant H. D. Hutchinson, 40th Native Infantry.	5	4	3	10	—
Lieutenant H. M. Rose, 41st Native Infantry	5	4	3	11	—
„ A. K. Abbott, 42nd Native Infantry.	4	10	4	4	—
Carried over - -					

Rank, Names and Corps.	Length of Service.				Remarks.
	With Regiment.		As Adjutant.		
	Years.	Months.	Years.	Months.	
Brought forward - -					
Captain C. McD. Skene, 43rd Native Infantry.	3	1	1	5	—
Lieutenant R. K. Ridgeway, 44th Native Infantry.	—	7	—	7	—
Lieutenant T. F. Stillwell, 45th Native Infantry.	4	11	3	6	On leave.
Lieutenant G. F. Churchill, 1st Goorkhas -	6	3	4	4	—
Captain S. E. Becher, 2nd Goorkhas -	11	2	5	9	On furlough.
„ L. Smith, 3rd Goorkhas - -	5	10	2	9	—
„ J. Hay, 4th Goorkhas - -	12	9	4	—	—
Total - - -	348	11	215	4	

Average of 46 Adjutants 7 years and 7 months with present regiments, and 4 years and 8 months as Adjutants.

SERVICE of Quartermasters of Infantry with their present Corps and as Quartermasters.

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		As Quartermaster.		
	Years.	Months.	Years.	Months.	
Captain G. R. Grylls, 1st Native Infantry -	5	9	3	2	—
Lieutenant B. Channer, 2nd Native Infantry	3	11	1	8	Offg. adjutant.
Captain D. J. Stewart, 3rd Native Infantry	1	8	1	8	On furlough.
„ H. E. Eliot, 4th Native Infantry -	6	2	6	2	Do.
„ H. T. Woodcock, 5th Native Infantry.	7	11	7	7	—
Lieutenant W. J. A. Birch, 6th Native Infantry.	5	8	—	1	—
Lieutenant J. Abercrombie, 7th Native Infantry.	6	7	5	—	On furlough.
Lieutenant C. M. Keighley, 8th Native Infantry.	5	3	3	8	—
Captain R. A. Price, 9th Native Infantry -	9	2	7	2	Offg. adjutant.
„ D. C. Hennessy, 10th Native Infantry.	6	—	6	—	On leave.
Captain J. Macnair, 11th Native Infantry -	9	3	2	9	On furlough.
„ H. S. Anderson, 12th Native Infantry.	10	1	7	5	Offg. wing officer.
Lieutenant E. H. Bingham, 13th Native Infantry.	6	4	5	9	—
Captain J. G. Maclean, 14th Native Infantry	9	9	9	9	—
Lieutenant F. A. Remington, 15th Native Infantry.	5	3	4	—	—
Captain J. T. Whish, 16th Native Infantry	3	9	3	9	On furlough.
„ H. J. Barr, 17th Native Infantry -	6	4	5	6	—
Lieutenant W. H. Browne, 18th Native Infantry.	3	4	3	4	—
Lieutenant A. W. Jamieson, 19th Native Infantry.	—	2	—	2	—
Captain W. H. Meiklejohn, 20th Native Infantry.	10	8	1	9	—
Lieutenant G. H. C. Dyce, 21st Native Infantry.	5	8	4	4	On furlough.
Lieutenant A. S. McRae, 22nd Native Infantry.	3	9	2	3	—
Carried over - -					

Rank, Names, and Corps.	Length of Service.				Remarks.
	With Regiment.		As Quartermaster.		
	Years.	Months.	Years.	Months.	
Brought forward - -					
Lieutenant S. V. Gordon, 23rd Native Infantry.	6	5	2	7	Offg. adjutant.
Lieutenant P. H. Wallerstein, 24th Native Infantry.	5	5	4	7	On furlough.
Lieutenant H. V. Hunt, 25th Native Infantry.	4	11	3	11	—
Lieutenant T. L. Lewis, 26th Native Infantry.	4	11	3	9	Offg. adjutant.
Lieutenant R. A. Swetenham, 27th Native Infantry.	6	6	3	7	Ditto.
Captain F. A. S. D'A. de St. Laurent, 28th Native Infantry.	6	6	5	10	On furlough.
Lieutenant R. N. Hanington 29th Native Infantry.	5	6	4	6	Do.
Lieutenant G. F. Young, 30th Native Infantry.	5	9	4	10	Offg. adjutant.
Lieutenant A. C. G. Lydiard, 31st Native Infantry.	5	10	3	9	—
Captain A. P. Samuells, 32nd Native Infantry.	9	4	3	8	Offg. adjutant.
Captain E. L. Stehelin, 33rd Native Infantry	6	11	6	—	Offg. wing officer.
Lieutenant E. S. Cooke, 34th Native Infantry.	6	11	5	10	Off. adjutant.
Lieutenant R. T. Hawkes, 35th Native Infantry.	6	3	1	9	—
Lieutenant E. H. Wilson, 36th Native Infantry.	4	—	3	—	On furlough.
Lieutenant J. Corse-Scott, 37th Native Infantry.	5	—	4	9	Offg. adjutant.
Captain A. W. Graham, 38th Native Infantry.	6	4	1	8	Offg. wing officer.
Captain J. H. Baldwin, 39th Native Infantry.	9	8	8	7	On furlough.
Captain R. O. Vyvyan, 40th Native Infantry.	—	4	—	4	—
Captain V. W. Tregear, 41st Native Infantry.	12	—	3	8	Offg. wing officer.
Lieutenant W. Brydon, 42nd Native Infantry.	6	—	4	2	Do.
Captain A. J. Iles, 43rd Native Infantry -	3	1	3	1	—
Lieutenant C. R. Macgregor, 44th Native Infantry.	—	3	—	3	—
Captain C. L. Woodruffe, 45th Native Infantry.	10	6	3	—	—
Captain C. Mercer, 1st Goorkhas - -	12	2	—	9	—
Lieutenant W. Hill, 2nd Goorkhas - -	3	6	2	9	Offg. adjutant.
Captain R. E. K. Money, 3rd Goorkhas -	8	11	6	8	—
,, G. W. Rogers, 4th Goorkhas -	6	—	4	—	—
Total - - -	301	4	194	2	

Average of 49 quartermasters 6 years and 2 months with present regiments, and 3 years and 11 months as quartermasters.

MEMORANDUM of the Average Length of Service of Officers with their Regiments, and in their Appointments in the Cavalry and Infantry of the Bengal Army.

BENGAL CAVALRY.

Commandants.

	Years.	Months.
With their regiments - - - -	12	10
As commandants - - - - -	10	6

Seconds-in-Command.

With their regiments - - - -	11	6
As seconds-in-command - - - -	7	1

Adjutants.

With their regiments - - - -	9	5
As adjutants - - - - -	6	2

Second and Third Squadron Officers.

With their regiments - - - -	10	3

BENGAL INFANTRY.

Commandants.

With their regiments - - - -	12	8
As commandants - - - - -	8	6

Seconds-in-Command.

With their regiments - - - -	10	11
As seconds-in-command - - - -	5	4

Wing Officers.

With their regiments - - - -	10	1

Adjutants.

With their regiments - - - -	7	7
As adjutants - - - - -	4	8

Quartermasters.

With their regiments - - - -	6	2
As quartermasters - - - - -	3	11

N.B.—In the foregoing returns, the period during which an officer was *officiating* in an appointment has been calculated as part of his service in that appointment in all cases in which he was subsequently confirmed in the appointment in question.

T. RATTRAY, Colonel,
Officiating Deputy Adjutant-General.

ENCLOSURES to LETTER No. 51 of 3rd March 1876.

PRÉCIS of CORRESPONDENCE and RETURNS received in reply to Military Department Letters addressed in February and March 1875 to the Adjutant-General in India, the Governments of Madras and Bombay, and the Lieutenant-Governor of the Punjab, asking for Opinion and Information—

1st, on certain points connected with the present system for the appointment and promotion of British and Native officers of the Native armies of the three Presidencies; and

2ndly, on the condition of the Native armies generally.

The circumstances which led to these inquiries are given at length and in their order in the Viceroy's note of the 8th February 1875.

In accordance with the order contained in the last paragraph of that note, the above-mentioned letters were addressed to the authorities named. All the replies have now (14th August) been received.

The information called for may be placed under two heads—

I. Officers of the Native army.

II. Rank and file of the Native army, the first being sub-divided—

(*a.*) British } Officers.
(*b.*) Native }

It will be convenient to take the divisions and sub-divisions of the subject of inquiry separately. With respect to the first division, namely, officers of the Native army, the Governor-General in Council said that there were several points in the present system of appointing and promoting officers on which he would be glad to have their Excellencies' opinion, and that doubtless there would be others connected with the subject on which they would desire to remark.

Eight subjects were indicated as of importance, and on them the following questions were put:—

(*a.*) British officers.

I.—Does the present mode of appointing British officers to the Staff Corps work well as respects providing officers for the Native army, and is it attended with injury to British regiments?

If the system is inconvenient, what alteration in it would his Excellency recommend?

His Excellency Lord Napier of Magdala.—His Excellency thinks that although there are some disadvantages connected with the present method of appointing officers to the Staff Corps, among which not the least important is the possibility that young officers who have served with British corps may acquire a distaste for service with Native troops, the system as a whole appears to work better than any other which has been proposed, and his Excellency does not therefore recommend any alteration in it.

There is very decided advantage in the early training obtained in the undeniably good school of a British regiment which without doubt does lead to a degree of efficiency and good tone of which there is no assurance in any system of direct appointment.

With respect to the effect of the system on British regiments, it seems probable that the withdrawal of so many junior officers must be attended with a degree of inconvenience, if not of positive injury to the interests of the regiment. Those deciding to join the Staff Corps cannot have much interest in the regiment, but they have, on the other hand, a direct interest in conducting themselves well while with it. At the immediate present the number withdrawn has been inconvenient. It is probable in future the demands on British regiments for officers will be moderate and regular.

His Excellency Sir Fred. Haines.—The British regiment as a source of supply of young officers for the Madras army is an absolute failure. There are at present no candidates. Young officers choosing an Indian career select other presidencies where the opportunity of civil employ is greater. Had young officers no views beyond military duty, no doubt there would be a fair proportion of candidates for the Madras army.

The effect of the present system on British regiments is prejudicial. The young officers in training do not care for their regiments; the regiments do not care for them. The constant coming and going of young officers is bad for the men, who have no great respect for them. In time of war British regiments could not be called on to give up their subalterns and the supply would fail at a critical moment. Sir Fred. Haines has never yet heard a commanding officer say a good word for the system, but one and all condemn it from their regimental point of view.

His Excellency finds it difficult, however, to suggest a better training ground than British regiments, which, as being inadequate, should be supplemented by a proportion of direct appointments, "perhaps an extension of the Indian cadet class would be the better plan?" *

His Excellency Lord Hobart.—His Excellency expresses a general concurrence in all the replies given by Sir Fred. Haines; says "nothing can be less satisfactory as regards the most important "question that can affect an army, the system under which it is officered, than the present "condition of the army of this presidency. We cannot even obtain the number of junior officers "required to complete the number of European officers now allotted to each regiment."

Hon. Mr. Robinson.—Entirely concurs in Sir Fred. Haines' opinion. "The early training of "young officers with European soldiery is not calculated to awaken that respect for and "sympathy with the Native soldiery or confidence in them which was an important element of "strength under our former organization: in nine cases out of ten these necessary conditions "are reversed." He recommends direct cadetships to the Indian army, parents being deterred through fear of expense from sending their sons into the service through the channel of British regiments.

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* Sir F. Haines is understood to mean an increase to the number of Secretary of State's nominations of Indian cadets to Sandhurst.

Hon. Mr. Ellis.—Entirely concurs with Sir Fred. Haines.

His Excellency Sir C. Staveley.—The system has worked well. A very superior body of young officers have joined the Staff Corps and are working creditably, but are said to have a hankering for ex-regimental employ. His Excellency believes the system is indirectly injurious to British regiments, which lose many of their best young officers, *e.g.*, in ten years 21 young officers left the 108th Foot for the Staff Corps.

His Excellency recommends either direct cadetships to the Indian service to be attached for a certain time to British cavalry or infantry regiments, or an Indian Military College, or preferably an enlargement of Sandhurst, with a two years' course and choice of service according to standing in pass list;—subsequent exchanges between officers under field rank being, as now, allowed.

His Excellency Sir P. Wodehouse.—Expresses no opinion on this point.

Hon. Mr. Rogers.—Gives no opinion beyond remarking that "whatever system of appointment "to the Indian army may be followed, I am clearly of opinion that all young officers, both of the "British and Indian armies, should be for a certain time trained together at Sandhurst or some "similar institution."

Hon. Mr. Gibbs.—Gives no direct opinion as to the working of the present system, but recommends the establishment of a Military College in England, in which all cadets chosen for the Indian army should be educated for two years, in view to promoting *esprit de service.* Offers no opinion on the mode of selection, but thinks provision should be made for sons and nephews of officers of the Indian services. The cadets on arrival to be attached to Native not British regiments, "and kept there for two years to learn not only their duty but the character and "habits of the men, and then let them be posted to the regiment in which they are eventually "to rise."

II.—Is it possible under the present system to retain and advance officers in the same regiments with due regard to the claims of other officers, and should not some regulation on the subject be laid down in order that the procedure in making promotions may be based on uniform principles, and not liable to change according to the views of each Commander-in-Chief?

If such regulations are desirable, his Excellency is requested to suggest a rough draft.

His Excellency Lord Napier of Magdala.—His Excellency believes it possible to "advance "officers in the same regiment"—that is, to preserve regimental succession as a rule, with due regard to the claims of other officers, and that regulations are certainly required in order that the procedure in making promotions may be based on uniform principles.

In the old Indian army, though regimental seniority was secured, there was much army supersession outside the corps which cannot possibly take place under the Staff Corps system. On the same principle there is no legitimate ground for complaint if under the latter system there is disparity of regimental position between two officers of equal army standing. At present, owing to various circumstances, not permanent in their nature, there has been more disparity than is desirable. A draft of rules is proposed which will, if adhered to, remedy this. [The foregoing remarks refer chiefly to supersession outside regiments; the following to the retention and advancement of officers in their regiments.] Under the existing system by which there are still unemployed but meritorious officers, promotion by regimental succession, though invaluable as a rule, cannot in every case be followed without injustice, as such officers may have a claim to a vacancy in a regiment superior to that of the next for promotion. In the interests then of the service and the regiment, they should be restored to the regimental establishment. Such cases must be treated on their merits.

The military education of the present day secures the service from the rise of actually incompetent officers to the higher positions, but in individual cases discretionary power should be vested in the Commander-in-Chief to delay an officer's regimental rise. Wing officers declared, on sufficient authority, incompetent to command their corps should be placed on the pension list if they cannot be otherwise provided for.

To secure a flow of regimental promotion his Excellency proposes that attainment to the rank of colonel in Staff Corps, *i.e.*, 31 years' service, shall involve vacation of regimental employment, subject to a further appointment for a term of five years, by which time the officer would be 55 years old — the age of civil superannuation. Local officers to vacate after five years' rank as substantive lieutenant-colonels, or the attainment of colonel's allowances.

The rules for regulating regimental promotion are in Appendix A.

A return of the present length of service of all officers in regimental employ in the three armies on the 1st April 1875 is in Appendix P.

His Excellency Sir F. Haines.—The disbandment of 16 regiments and the reduction of officers in the remainder has created such a supernumerary list as renders it impossible in the Madras army to retain and advance officers in the same regiment. The claims of supernumerary officers have always been considered, and the Secretary of State's orders, that appointments are to be regulated by substantive rank consistent with claims, service, &c., have always been adhered to as closely as possibly, while every effort, compatible with that general principle, is made to retain officers with their old cadre regiments. Under existing conditions he sees no better plan for adoption, but would consider it most difficult to draft a code of regulations governing promotion on this system.

His Excellency Lord Hobart.—"The present system" (referring in part to the withdrawal of officers from regimental for civil duties) "does not allow of European officers remaining long "enough with the regiment to obtain a hold upon the confidence and attachment of their men. "His Excellency the Commander-in-Chief has indeed shown that every endeavour is made to "keep the officers to their regiments; but the regulations of the Staff Corps are evidently such "that those efforts are of very serious or comprehensive avail."

The officers should be permanently attached to their regiments; but "until the present Staff "Corps system has been broken up by judicious arrangements and by lapse of time, this change "cannot be completely made."

Hon. Messrs. Robinson and Ellis.—Entirely agree with Sir Fred. Haines.

His Excellency Sir C. Staveley.—It is not possible without great injustice to the claims of temporarily unemployed but meritorious officers, *e.g.*, staff officers whose tenure has expired, whose exclusion would be injurious to the service. His Excellency would lay down no hard and fast rule to meet such cases, but leave it to commanders-in-chief to exercise their discretion. Seniority tempered by fitness has guided selection in Bombay. "The general idea that "officers are too often changed about from regiment to regiment is fallacious. The system, "however, of bringing in officers from the unemployed list or from other regiments *to officiate* "is very objectionable, * * * but under the present circumstances of the service this cannot "be avoided."

His Excellency Sir P. Wodehouse.—His Excellency says: "The universal complaint is * * "that under the present system of promotion the European officers are not sufficiently acquainted "with their men." Recommends that, subject to the proper complement of officers being fixed, it should be understood that their promotion would be regimental, and that when employed on the army staff they would be seconded.

The Hon. Messrs. Rogers and Gibbs.—Express no opinion on this point.

III.—Does it often happen that senior officers are serving under the orders of juniors in Native regiments, and if this is the case and inconvenience has arisen, how is it to be avoided under the Staff Corps system of promotion? How many cases of the kind are there at present?

His Excellency Lord Napier of Magdala.—A detail of the cases is given in Appendix B. They are 42 in number, "but do not seem to be of sufficient importance to warrant, on their "account, the condemnation of the present organisation." The cases are in process of diminution, and many will disappear when, under the system of promoting local officers to field rank, officers of the Staff Corps recover their relative position. Some cases are due to the orders of the Government of India for the regimental employment of unemployed officers. In rare cases, some such supersession cannot be avoided, but they will be by no means as numerous as those resulting from exchanges in British regiments or the action of brevet rank given for field service.

His Excellency Sir Fred. Haines.—Only two such cases have occurred in the Madras army, and they arose from want of qualification in those superseded. The clashing of rank has been carefully avoided as infallibly detrimental to discipline. "Situated as this army is with regard to "its supernumerary list and under the Staff Corps system of promotion, an officer cannot expect "to rise as he did before in his regiment, regimentally."

No remarks by the Government of Madras.

His Excellency Sir C. Staveley.—"Only one such instance has occurred in this army."

No remarks by the Government of Bombay.

IV.—Is the present proportion of senior to junior British officers in the Native army attended with injury to that army; and is there a sufficient number of young officers coming on?

His Excellency Lord Napier of Magdala.—It is detrimental to general efficiency, as it necessitates the employment of senior officers in subordinate positions, and thus while disheartening the seniors, deprives juniors of appointments suitable to their standing. "More "especially has it been disheartening to those officers who performed distinguished services "in 1857–58, and who, owing to successive reductions or the disbandment of their corps, found "themselves in reduced regimental positions, or unemployed for an indefinite time. The "questions resulting from such cases as these and from others arising out of the exceptional "emergencies of 1857–58, have raised difficult problems, and made it impossible in many "instances to harmonise the interests of individual officers with the well-being of regiments, "and have contributed in no small degree to create the difficulties and anomalies now com-"plained of." Since the removal of the orders prohibiting the nomination of candidates to any permanent vacancies in Native regiments, "a steady flow of admissions has taken place, and "there seems no reason to anticipate any difficulty in keeping up a constant supply of young "officers for the Staff Corps."

His Excellency Sir Fred. Haines.—"The present great and ever-increasing proportion of junior British officers in the Native army is most injurious."

"There are no young officers coming on, no candidates to fill the number (upwards of 30) of permanent and officiating appointments now vacant.

"The age of the second-in-command and wing officers is also becoming a serious matter, and fails to be detrimental to efficiency."

No remarks by the Government of Madras.

His Excellency Sir C. Staveley.—The present proportion is most injurious to the army. In the whole Bombay army there are 289 field officers to 266 captains and subalterns, of whom there are employed on regimental duty 99 and 134 respectively. The officers are, as a body, too old. Field officers are employed on derogatory duties, and consequently are not zealous in their performance.

No remarks by the Government of Bombay.

V.—Does the present system of selecting officers for staff or civil employ work detrimentally to the efficiency of the army? What number of officers have been actually taken for the army departments and for civil and political employ in each year during the last five years?

How many have been returned from such employ to military duty?

Could the system of seconding be extended with advantage to all military staff appointments?

Should any change be made in the present rules as to the promotion in military rank of officers employed in the civil departments of the army or in civil and political appointments?

Is it desirable to make any change in the way in which the Commissariat and Army Pay Departments are filled?

His Excellency Lord Napier of Magdala. — "The system of selecting officers for civil department of the army and for civil and political employment must to a certain extent work detrimentally to the interests and efficiency of the army; but the evil has not been so much felt of late, as on his Excellency's urgent representations, the demands for officers have diminished."

The selections were not made from the second wing subalterns or from the unemployed officers, but from the smart trained young regimental officers, adjutants, quartermasters, &c. The small regimental establishment could not stand this strain without damage.

As a rule the army does not benefit by the larger experience civil employ imparts to officers, as they rarely come back unless as disappointed or unsuccessful men.

In Appendix C. are given opinions recorded by Sir E. Paget 1826, Sir H. Fane 1836, Sir P. Grant in 1858, Sir W. Mansfield 1869, Lord Napier of Magdala 1870, all bearing on the inconvenience of officers being taken away from corps for civil employment and, as respects the earlier memoranda, returning to regimental duty when the corps went on service.

His Excellency, remarking on the viciousness of the old system, observes: "One of the "objects of the present organization was to remove these evils by improving the condition of the "regimental officer, both in respect to pay and higher responsibilities.

"The general administration of the country is benefited by the employment of soldiers on civil and polical duties.

"It is not contended that officers should not be taken from regiments for non-military duties, but they should not be taken when the military authorities declare they cannot well be spared. They should be taken from the legitimate reserve provided for the purpose, and not from the higher grades except in special cases when absolutely and imperatively necessary for the public services. It will be impossible to preserve regimental efficiency if the smartest and best officers are taken just when they become most useful and necessary to their regiments."

Appendices D. and E. give the numbers of officers taken away from and returned to regimental duty in the civil departments during the five years ending 31st December 1874.

In these five years 12 were taken for army departments, 52 for civil employ, and 34 for famine relief duty, or a total of 98 officers: of whom 58 were lieutenants and 36 captains, 15 of the whole being taken from regiments not serving under the Commander-in-Chief. Excluding the famine relief duty, the annual average of officers taken away was $12\frac{4}{5}$.

The number returned in the same period was 64, viz., 7 from army departments, 46 from civil employ, 11 from regiments not under his Excellency's orders. The 64 was made up of lieutenants 7, captains 30, majors 10, lieutenant-colonels 13, colonels 4.

The system of seconding is intimately connected with any scheme of regimental promotion in the Indian army and must be adopted as a component part of the plan.

By doing so, the field for selection is widened,—the officer's employment is ensured at the end of his tour of staff service, his military training is extended, and more benefit by the opportunity.

The absentee to continue his regimental subscriptions. The tour of service should be reduced from five to three years, the former being too long a period to withdraw a man from a Native regiment. The objection that a three years' tour is too short to give an officer training in his departmental duties is met by the remark that under the modern system of military education he begins his tour of departmental duty already trained to all but its routine.

"It is not too much to say that there is hardly a regiment of cavalry or infantry of the British or Indian service in this presidency from which three or four officers could not be selected who would be able to make a fair survey or reconnaissance of a line of country off-hand."

It is not necessary to make any changes in the present rules under which officers employed in the civil departments of the army and in civil and political employ obtain promotion.

No change is advocated in the method by which the Commissariat, Pay, and Survey departments are now officered.

As officers of these departments have to take the field, they "should preserve in peace the "military element of organization which is best suited for war, and be composed of officers "accustomed to military control and subject to military law rather than of civilians on whom it is "necessary to confer relative military rank to secure them that respect and position which is in-"dispensable in carrying on their duties in correspondence with the various military departments."

His Excellency Sir Fred. Haines.—It is detrimental to military efficiency that a young officer should join having an object in view outside his profession, for his legitimate work suffers.

His Excellency would not cut off from officers all hope of civil employment, but "when once "they have elected to serve in a civil capacity and have passed through their probation, they "should give up all thoughts of military status and position; that they should become civilians "in fact as well as by employment."

In five years 51 officers have been taken* for the army departments and 50 for civil employments, and in the same years, 84 have returned to military duty.

On the proviso that there is a return to the old system of regimental promotion "which his "Excellency earnestly hopes may be the case," all officers taken for army staff should be seconded.

The Commissariat department should not be severed from the army and military, being far superior to a civil *personnel* for the performance of these military duties.

The Pay, Police, and other civil departments should have no connexion with the army,—officers

* From regimental duty?

taking employment in them becoming civilians, coming under departmental rules for pay, promotion, and pension.

His Excellency Lord Hobart.—"There should be no inducement of tempting civil employment either here or in other Presidencies to disincline the young officer to his regiment, unsettle his views, and impair his military experience and habits when he has obtained it. * * We shall never have real cause to be satisfied with our Indian army until there is a distinct and unpassable barrier between military and civil employ."

Hon. Mr. Robinson.—Believes that an important political end is subserved by allowing free passage for subalterns to civil employ; would reserve the police entirely for them.

All departments are suffering for want of suitable young men, viz., young men with that military training and discipline so useful for civil life. "No assurance for honesty and efficiency comes "near the possession of Her Majesty's commission."

Hon. Mr. Ellis.—Concurs with Sir Fred. Haines, and anticipates no serious inconvenience from a prohibition to select officers of the army for civil employment either in the Public Works, survey, jails, or even police. When a military officer has elected for civil employment he should become a civilian in fact as well as employment.

His Excellency Sir C. Staveley.—The present system does not work detrimentally. Military staff officers return to their corps more efficient. His Excellency has no objection to young officers being withdrawn for civil employ, provided there is a reserve at hand to take their places.

Six field officers and 42 captains and subalterns=48 have been withdrawn for army departments and civil employment in the past five years, 24 field officers and 17 captains and subalterns=41 have returned to military duty.

Officers taken from regiments for army staff should certainly be seconded.

His Excellency Sir P. Wodehouse.—Officers entering the Indian army should do so on the understanding that when employed on the military staff, they will be seconded, and that if they accept civil employ, their military career will close. His Excellency adds: "If it be once under-"stood that officers of the army are for the army, means will of necessity be devised for meeting "the wants of the civil departments. Elsewhere the services of military officers have not been "found indispensable."

Hon. Mr. Rogers.—"I quite concur that for those officers who finally elect for civil employ, say after a year or two, the road to military promotion should be barred, and they should be transferred to the civil list. In such cases, some fair arrangement should be made by which service in the army should be allowed to reckon towards pension in the civil department. Military staff appointments should be filled, as proposed, by officers of the army, who should, while so employed, be seconded."

Hon. Mr. Gibbs.—"The command of a Native corps should be held up to the military officer as "the greatest honour and the most trusted appointment he can attain, and only when there may "be a surplus beyond the wants of the army, should any be allowed to seek civil employ, and "with those who obtain such, it should be the rule that, should they after two years' experience "be considered fit for such duty, they should be obliged to make their choice once for all, whether "they will join their regiments or be transferred to a civil staff list, into which once entered, they "would cease to be military men." Officers holding appointments as such, but non-regimental, should be seconded. "We should at once remove to a separate list all who are in permanent "civil employ, leaving their names in italics as seconded, their promotion going on as now in that "corps."

VI.—Is the present complement of British officers sufficient for Native regiments in peace and war? If not, what addition should be made, and what duties be assigned to the officers? Is it desirable that the number of British officers should be the same in all regiments, or would it be convenient to have different systems? In time of war, how would the wants of regiments from losses in the field be supplied?

His Excellency Lord Napier of Magdala.—"The Commander-in-Chief is not prepared to recommend any increase to the number of British officers now sanctioned for the native regiments. It is essential that all direct interference with Native officers in command of their troops and companies should, as far as possible, be avoided, and the result of increasing the British officers beyond the number which is absolutely necessary in peace and war, would be to reduce Native officers to the position they held in the old Native army."

There is great difference of opinion as to the fitness of Native officers for the actual command of troops and companies. The system is accordingly described at some length, under which in irregular regiments the Native officers were trained to habits of command and self-confidence, and his Excellency adds, "Yet the material which under the one system has risen to the high "position held by the Native officers in the Guides, the Sind horse, the Punjab Frontier force, and "the old irregular cavalry is in many instances the very same which in the other grew into the "respectable but inefficient Native officer of the regular army."

Besides the need for leaving room for the Native officer to have such distinct authority and responsibility as would place him under the same pressure with the British to perform his duty efficiently, there were three other objects for which the present system was organised:—

1st.—To make regimental equally desirable with other duty.

2nd.—To concentrate actual duties on officers so that inefficient performance must at once come to light.

3rd.—By reduction of numbers to enable the first condition to be fulfilled.

"That this system has answered better than the old one may be fairly asserted; firstly, on the ground of greater efficiency which may be claimed for the regiments under the present over those under the old organisation; secondly, from the achievements of these regiments in the field, and thirdly, from their obedience."

Reasons are given why the system has not attained the perfection of which it is believed to be capable, but a very great advance has been made in the right direction.

"The superior position given to Native officers, and the efficiency required of them in drill and discipline, have developed and improved their capacity. No impartial observer, who knows what the old army was, and what the present one is, can hesitate for a moment to pronounce the regiments of the present day greatly superior to those of the old army; better drilled and disciplined, more obedient, less fettered by assumptions of religious restraint, more moveable, and more ready for every service."

Appendix S. gives abstracts of inspecting general officers for the last three years.

The foregoing remarks refer to the sufficiency of the British officers for time of peace.

In regard to time of war, it is shown that there is under the present organisation one British officer for every 100 men; the average number that went into the Sutlej and Punjab campaigns was one officer to every 80 men.

Illustrations are given of what Native regiments have done under the irregular system before and since the reorganisation of the whole army, the conclusion being that "they have shown no "inferiority to the old and regular Native army either in peace or war."

Replying to the third clause of the question, his Excellency thinks "the advantages of "maintaining throughout all the regiments of an army, one organisation and one system, render "it most desirable that the number of officers with each corps should be identical, so that "the possibility of any want of unison and harmony between the component parts of the same "body may be avoided."

Replying to the last clause, it is pointed out that drawing on all resources, there is a reserve of 520 officers for the total number of 1,250 regimental officers; allowing for one fourth of this reserve not being available, there would remain 390 officers, or more than two additional officers for every regiment in the three Presidencies. But at least a third of the army would be in reserve. Each of these 62 regiments could spare two or three officers to those in the field, or 145 officers in all. "Thus 545 officers would be available to reinforce the regiments in the field, "and to provide for field establishments and an expansion of the army."

Under the new, no less than under the old system, officers in civil employ are liable to be recalled to military duty.

Quotations are made from a memorandum by Sir H. Norman, showing that in the worst campaigns that we have had during the last 60 years, the loss in officers has not exceeded an average of one and a half per Native regiment.

"We may, therefore, feel secure in possessing an ample reserve, and as the whole number of officers therein treated of amounts to 1,765 out of a total of 2,608 on the strength of the army, it is clear there is a further number of 843, of which no account has been taken, and which includes officers employed in the army staff departments."

His Excellency Sir Fred. Haines.—Insufficient whether in peace or war. The distribution of duties is unsatisfactory. There should be at least one British officer with each company, the command of which should be vested in him, and *he* should lead it. He should be an executive, not a supervising officer. Trusts that no attempt may be made to alter the composition of Madras regiments. The component classes are well balanced in almost every case. The number of British officers should be alike in all.

The establishment of British officers per regiment should be—

1 Lieutenant-colonel.	
1 Major.	
4 Captains 6 Lieutenants 4 Sub-lieutenants	Of whom 1 adjutant, 1 quartermaster, 1 musketry instructor, allowing 5 absentees on sick and other leave, 6 company officers remaining.
16	

This strength would enable a corps to stand a fair proportion of losses in the field and still remain efficient.

His Excellency Lord Hobart.—Agrees that 16 officers are sufficient for the needs both of peace and war. Now "the number of European officers is much too restricted."

Hon. Mr. Robinson.—Concurs with Sir Fred. Haines. "Nothing short of the complement "which his Excellency has named would suffice, and I would add one or two to the subaltern "ranks to admit of detachment for civil employment without weakening the cadre."

His Excellency Sir C. Staveley.—Considers the present number sufficient for garrison duties in time of peace, but certainly not so for the field. The establishment his Excellency considers necessary is given in a brief pamphlet [advocating a three-battalion system of organisation marked C., which will be dealt with elsewhere], and is for each infantry regiment:—

1 Lieutenant-colonel.
1 Major.
4 Captains.
4 Subalterns.
1 Adjutant.
1 Quartermaster.
12

The additional officers required for field service would be drawn from the reserve battalion.

His Excellency Sir P. Wodehouse.—Does not lay down the number to be allotted to each regiment. The present number is insufficient for service in the field. The proper complement should be fixed.

Hon. Mr. Rogers.—Recommends corps of two battalions, one for active service with 15 officers and one for garrison and reserve duties with six.

Hon. M. Gibbs.—Is not competent to fix the number actually required, but says either we must go back to the old plan of the full complement of officers which would be required in time of war so as to allow of a portion being employed elsewhere than with their regiments in time of peace, or we must settle the number purely on a consideration of what is requisite for the regiment in war or peace.

VII.—Is any alteration in the organization of Native regiments desirable in order to ensure a more efficient supervision by the British officers?

His Excellency Lord Napier of Magdala.—Not necessary in respect to composition of corps. The caste classification decided on in 1864 was correct. The proportions then recommended of class regiments, class company regiments, and regiments in which all races are mixed without any classification are on the whole the most expedient.

Though there is much to be said in favour of "class regiments," it cannot be asserted that they are on that account better in the field than certain "class company regiments," while there is greater risk of their loyalty being worked on from without.

Not necessary in respect to organization of battalions in respect to the single company formation. The company unit is the most convenient and "it would be certainly wiser to follow " and not go in advance of Her Majesty's British Army in so radical a change " as the substitution of the double company formation.

Not necessary in respect to any organization of regiments of two or more battalions whether proposed for purposes of equalising promotion already secured or for promoting *esprit de corps* on a more considerable footing, which might be politically dangerous.

Not necessary in respect to any extensive localisation of the Native army, which means more or less of deterioration or loss of mobility, besides being, except in the case of the Goorkhas, politically inconvenient.

In regard to the supervision actually exercised by British officers "the present organization is " as complete as is necessary."

"Considering the nature of the Native army, that we have to retain the executive control of a regiment and yet to afford some room for the Native soldier to aspire to a higher and more respectable position and to hold out some reward for the more loyal, brave, and intelligent, something to satisfy their *amor propre*, which is so strong and, properly used, so valuable an element in their character; considering these points, it does not appear that we can better meet the peculiar demands of the present day by any change of organization."

His Excellency Sir Fred. Haines.—Would reduce the number of companies of a batallion to six each of 100 rank and file as a peace establishment. It is a vital point if we are to look for any real efficiency in the Native army that each company should be commanded by a British officer.

The Government of Madras offer no remarks.

His Excellency Sir C. Staveley.—His Excellency's proposals, which are radical, are contained in the pamphlet B. already referred to. Recommends regiments of three battalions,—all recruiting being for the battalion with officers and men interchangeable,—10 British officers as above stated :—

1	Subadar-major.	
4	Subadars - - - -	(8?)
9	Jemadars - - - -	Including Native Adjutant.
33	Havildars - - - -	Including Drill Havildar.
41	Naiques - - - -	Including Drill Naique.
1	Drum-Major	
16	Drummers.	
600	Sepoys - - - -	(In war time 800.)

Eight company battalions formed into four double companies with one captain, one subaltern, two subadars, two jemadars for each double company. The captain mounted except under fire; the Subaltern commanding one single company and the senior subadar the other on parade.

The Government of Bombay offer no remarks.

(*b.*)—Native Officers.

VIII.—Are the existing Native officers competent to command their troops and companies on all occasions, and is any improvement taking place in the men who are coming forward for advancement to the commissioned grade? If these questions are answered in the negative, what measures are desirable to bring about a sufficient degree of improvement in the Native officers, or is it considered that Native officers cannot generally be obtained possessing the qualifications necessary to command troops or companies, even with the supervision of British officers in command of squadrons and half battalions and their subalterns, besides the regimental staff?

His Excellency Lord Napier of Magdala.—The confidential returns of the General Officers of the Bengal Presidency [see Appendix S.] with his own personal knowledge of every Bengal regiment but one, almost all those of Bombay, and a considerable portion of the Madras army, satisfy his Excellency of their general efficiency and of their ability to command their troops and companies, and to perform their duties when on detached command and removed from the immediate control of their British officers. His Excellency "particularly noticed the intelli- " gence and comparatively superior education of many Native commissioned and non-commissioned " officers of the Bombay army."

"The Native officers of the Bengal army showed during the famine a very high standard of intelligence, administrative ability, and integrity."

Where they have not as a body become efficient troop and company commanders, is due not to inferior material but to adverse circumstances, and this refers in a very special degree to the Madras army. "There is nothing in the military history of any of the Native armies of India " to justify a belief that with fair opportunity the Native soldier is not capable of becoming an " efficient troop or company commander, under the careful selection, education, and training of his " European officer."

A sound system of selection as opposed to seniority is essential. To this end, the status of the private soldier should be maintained. Systematic military training in camps of exercise should be resorted to, and such education should be given as the recently established schools can impart.

The social position of native officers should be more thoughly recognized; they should, when on duty, travel first class, and those honoured with decorations or special titles should have fixed precedence at durbars, &c.

" When men suitable for the higher grades can be found in the ranks of the regiment, they " should receive promotion; but when the tone of the regiment requires elevation, or when the " non-commissioned grades are unfit, the system of direct appointment of Native gentleman of " birth and position should be resorted to." When this is done, in order to mitigate the hardship to the lower ranks of retarded promotion, the senior of each grade should be removed on special pension.

Contrasting the pay of the Native officer of cavalry with that of the infantry, his Excellency recommends a revised scale for the latter as below—

Present Scale.			Rs.	Proposed Scale.			Rs.
2	Subadars	each	100	1	Subadar-Major	each	200
2	„	„	80	1	Subadar	„	150
4	„	„	67	6	Subadars	„	100
4	Jemadars	„	35	4	Jemadars	„	60
4	„	„	30	4	„	„	40

or an increase of Rs. 462 a regiment.

His Excellency suggests the formation of a fund, to be subscribed to by all Native officers and supported by Government, to afford each officer a bonus on retirement in addition to his pension, the smallness of which operates prejudicially to the interests of the army.

The further points refer to the condition of the rank and file of the Native army.

His Excellency Sir F. Haines.—" Does not consider the existing Native officers competent to command troops and companies in the full sense of the word. They are well drilled and well instructed as regards their ordinary duties, but they have not that self-reliance and quick apprehension which the leader of a company should possess."

" It is a pretence to say that the Native officer now commands his company. Minor punishments are all awarded by the wing officer, and by him the pay is issued. Moreover, the sepoys would have no confidence in the due and impartial performance of such duties by the Native officers were they entrusted with the execution of them."

The pension rules require recasting in view to earlier retirement of non-commissioned and commissioned officers. " These rules which seem to be framed expressly for the purpose of " retaining old men in the ranks, leave us with subadars of an average age of 54. What life or " energy is to be expected from natives of this age?"

More care is now exercised in the Madras army in selecting Native officers, but the invaliding and pension are fatal to efficiency. Continuous care in selection, improved means of education with professional and educational test examinations for promotion will, combined with a system of superannuation, create in time as good a Native officer as can be desired, but under the most favourable circumstances they will never be so qualified that British officers for troop and company commands can be dispensed with.

His Excellency Lord Hobart.—Considers that even if it were possible to bring the Native officer up to the level of the British officer, we might all the while have been labouring for a result inconsistent with our own security.

" Whether the quality of the Native officer is or is not to be improved, to leave things in other respects as they are at present, would be to abandon the traditionary policy by which we have gained our supremacy and ensured our safety in this country—that of employing Native soldiers under the lead of European officers whom they have learnt to regard with trust, respect, and affection."

Hon. Mr. Robinson.—From his personal experience in Moplah, Khond, and other affairs is " absolutely without hope of our sepoys if not adequately officered by English officers." This position is illustrated by an anecdote of what occurred within his personal knowledge.

" Military schools might be established through which natives of social standing might pass at an early age into the higher grades of Native officers without passing through the ranks."

Hon. Mr. Ellis.—" On the question of the improvement of the Native officer, I submit that in this Presidency we are situated somewhat differently from other parts of India. We have no specially warlike races, nor have we great families in which miltary service has become hereditary. The Native officer of the Madras army is at present much the same in origin and often in education as the sepoy he commands."

Supports Mr. Robinson's suggestion for a Native Military College for training Native gentlemen for direct commissions.

His Excellency Sir F. Haines.—Adds a minute to the effect that "if the question were before "us, I should oppose the creation of a Military College for Natives, being of opinion it is better "to trust to British rather than to Native science in war, and that it is good policy to retain the "Native officer in a subordinate position."

His Excellency Sir C. Staveley.—Refers to the opinion of his predecessor, which accompanies, and concurs in it. Do what Government will, the present uneducated class of Native officers, rising as they do from the ranks, cannot be so improved as to be an efficient substitute for British officers as company leaders, on whom so much should depend. The Native officers of the Bombay army are competent to command their troops and companies at ordinary field days in time of peace.

His Excellency Sir A. Spencer, 1872.—Has little hope that the present organization will make our Native officers a substitute for British officers. [His Excellency was not replying to the precise questions now under notice, but to an independent reference by his own Government.] He believed a fair share of education among Native officers would be secured by the recently introduced system of promotion under school certificates. After promotion, the value of the Native officer depends on the exertions made by his commanding officer for his improvement and efficiency. After promotion they are apt to become listless and apathetic, caring only for their pension. Through the habit of intimate association with the privates, the restraints of discipline are lost, they dread responsibility, and "Sir A. Spencer is convinced "that few would prove themselves equal to an embarrassing situation or an independent com-"mand." Of late years they have been of a better stamp, but cannot yet be termed efficient for the duties expected of them under the present organization. If the efficiency aimed at by the Government of India is such as shall enable the Native officer to represent the British officer who formerly commanded a company, in Sir A. Spencer's opinion this will never be reached. General Spencer advocates a system of examination before promotion into and in the commissioned grades, but lays even more stress on the importance of their intimate association with the English officers, as it existed before 1857, when there existed "a true reciprocity of kindly feeling and mutual confidence." However the present state of things may be represented, "the condition of the "Native army at the present time, so far as its *morale* is concerned, is decidedly inferior to what "existed before."

His Excellency sums up: "A return to the former regimental system would thus seem to commend itself, for it would be found impracticable so to train Native officers as to make them equal to, or do the part of, European officers, for their natural constitution is such that they cannot exhibit that moral firmness which would enable them to bear and accept responsibilities like the British officer."

He adds a suggestion that non-commissioned officers should, on grounds of discipline, be promoted into other corps than their own.

His Excellency Sir P. Wodehouse.—Referring to the exceptional character and system of the old irregular corps with their selected officers, says, "It seems too much to expect similar results "from the application of similar principles to the whole mass of officers, European and Native, "of the ordinary average capacity of an army, and it may be doubted if with European officers not "above the average, it would be prudent to seek for Native officers possessing special military "talents." His Excellency thinks that on economical grounds there might be a very moderate reduction of the existing complement of Native officers.

Hon. Mr. Rogers.—Concurs with Sir A. Spencer that the Native officer will never reach the level of efficiency of the British officer, especially under the present system of promotion from the ranks. Is inclined to think that the admission of sons of men of rank of Rajpoot lineage, &c., with sufficient pay, would be found worth its cost. He "does not believe that whatever may be "the educational tests devised to ascertain the fitness for promotion of the present rank and file of "the Native army, they will ever rise to the requirements of officers under the modern system of "warfare, in which the use of arms of precision tends more and more to throw responsibility on "the shoulders of company officers."

Hon. Mr. Gibbs.—Repeats Sir P. Wodehouse's argument as to the fallacy of the expectation that under the organization of the whole army on the irregular system similar results would follow to those which were apparent when there were a few of these corps with specially selected officers. Good Native officers can be got through the selection of the best men by a competent commanding officer, without more regard to seniority than in cases of men otherwise equally fit. Would be sorry to see Native officers reduced in numbers; they should be the mainstay of the regiment; would not expect any great results from the grant of commissions to sons of chiefs, &c. The candidates would be few in number, and would, he thinks, prefer to take service with the great chiefs—Holkar, Scindia, &c. Mr. Rogers offers his opinion as "a civilian member of the "Government, who for some of the best years of his service was constantly with the officers and "men of the irregular corps of the Bombay Presidency."

The foregoing abstract represents the views of the several writers on the specific points put forward by the Government of India. There remain a few suggestions and remarks which may be entered here.

His Excellency Lord Napier of Magdala's recommendation for the establishment of a species of retiring bonus fund for Native officers has been already noted.

His Excellency further supports, by the opinion of the late Duke of Wellington (Appendix Q.), his own view of the danger which would result from an amalgamation of the Native armies of the three Presidencies, a danger which his Excellency thinks would be as imminent now as when the Duke wrote, viz., in 1826.

The Hon. Mr. Robinson says: "I think the establishment of a family pension fund, to be subscribed to by every sepoy and Native officer in the service, for the benefit of widows and orphans, would greatly add to the popularity, respectability, and *esprit de corps* of the service, and would deserve the liberal support of Government."

The Hon. Mr. Gibbs advocates regimental homes, where the wives, families, and possessions of the men shall be permanently established and the pensioners retire to live, "where the old and "pensioned may find a place of rest, and the recruits a nursery and a school." The Native troops should be armed as efficiently as the Europeans are.

Some few references are made to the cost which the changes proposed in the officering of the army will involve.

Lord Napier of Magdala proposes no change in the system of appointment, or in the number of officers, but recommends an increase in the pay of the Native officers, which, it has been shown, will amount in each regiment to Rs. 462 a month, or for the infantry of the whole Native army, and, speaking roughly, to Rs. 7,37,352 a year.

No details of the cost of the changes proposed by the Governments of Madras and Bombay are given. Indeed, the proposals themselves are too vague to admit of any estimate being framed, even approximatively; but Lord Hobart says:—"It is to be hoped that arrangements may be "found possible, which, at a cost worth incurring when regard is had to the vital importance of "the object in view, will ultimately provide for these requirements. A very large addition to the "cost of the Madras army would be necessary to make it more really expensive than it is now, "when a heavy annual expenditure is incurred upon a weapon which would probably fail us in "the hour of need."

Sir P. Wodehouse says:—"Some portion of the cost of this reform might perhaps be provided by a very moderate reduction of the existing complement of Native officers; still the additional charge will no doubt be considerable. But his Excellency in Council cannot admit the fact as an insuperable objection to the measure. It is a common saying now that we hold India by the sword, that is, that if we cease to maintain our military ascendancy, our rule will speedily come to an end. There seems to be much truth in this, and thus the maintenance in the highest state of efficiency of everything connected with the army becomes most binding on the British Government. The omission to remedy admitted important defects in the constitution of the Native army must speedily bring about its own punishment. This Government, moreover, are not aware of the existence of any facts tending to prove that we are unable to meet the cost of the necessary reform."

The comparative cost of Sir C. Staveley's scheme given in Enclosure B. of his memorandum is not stated, nor in the absence of details as to the rates of pay to be given, can any estimate be formed. The Adjutant-General's scheme in Enclosure A. represents a total saving in the Bombay army of Rs. 5,000 a month, but as this does not take into account the additional non-effective charges to be incurred for the additional number of officers proposed for the new establishment, nor allows for the need either of getting rid of the existing officers in excess of the several grades laid down for it, or of continuing to employ them, the figures are of little value towards arriving at a just conclusion.

At page 23 of the letter from the Adjutant-General in India, No. 1932, dated 14th August 1875, and its enclosures, will be found a list of the Appendices, of some of which mention has already been made. There is no need to attempt to condense them all here.

Appendix N.—It may be noted, however, that Appendix N. shows that from 1st January 1870 to the 31st May 1875, there were 297 officers appointed as probationers to the Indian Staff Corps, thus divided: Bengal 185, Madras 29, Bombay 83; of these 31 withdrew from their probation. During the past 3½ years only two have joined the Madras corps.

Appendix O.—Shows that there are 53 officers of the Bengal army now holding military staff appointments, but who, not belonging to regiments, will become unemployed on the termination of their tenure of staff employment. Of this number 20 are field officers. [This return would be more complete if it were shown in each case how long the officer has been absent from regimental duty.]

Appendix P.—Shows the length of service of British officers holding appointments in Native infantry and cavalry line regiments of the three Presidencies and of the Punjab and Hyderabad forces.

Taking the line corps of the three Presidencies, they are as below:—

Cavalry.

—	Average.	Maximum.	Minimum.
Commandant - - - -	30	38	20
2nd in Command - - -	25	34	16
2nd Squadron Officer - - -	21	30	13
3rd „ „ - - -	20	26	9
Adjutant - - - - -	13	18	7
1st Squadron Subaltern - -	13	19	6
2nd „ „ - - -	6	22	5

Infantry.

—	Average.	Maximum.	Minimum.
Commandant - - - -	33	38	24
2nd in Command - - -	29	36	18
Wing Officer - - - -	24	30	16
Adjutant - - - -	14	19	6
Quartermaster - - - -	14	19	7
1st Wing Subaltern - - -	15	21	6
2nd „ „ - - -	9	19	3

The average in the Punjab force is lower; but it is not greatly disproportionate.

The object of this latter return is to show, from the great length of service of the commandants and seconds-in-command, the necessity for continuing the inducements to retire.

In connexion with the question of the officering of the Native army, on 3rd March 1875, letters were addressed to the Commander-in-Chief in India, the Governments of Madras, Bombay, and the Punjab calling for a return up to 1st January 1875, showing the average length of service of British officers with their present regiments, and in the appointments they held on that date in the cavalry and infantry.

The following is an abstract of the returns furnished by each with additional figures showing the maximum and minimum periods, and the number of officers in each grade above the average length of service in regiment and appointment:—

Bengal.

Appointment.	No.	With Corps.				In Appointment.			
		Years.			Over Average.	Years.			Over Average.
		Maximum.	Minimum.	Average.		Maximum.	Minimum.	Average.	
Cavalry.									
Commandant -	18	29	2	13	8	21	2	10½	8
2nd in Command -	19	20	2	11½	8	11	2	7	10
Adjutant - -	19	16	3½	9	11	14	2	6	9
Squadron Officer -	38	16	2	10	20	—	—	—	—
Infantry.									
Commandant -	48	36	1	13	24	17	1	8½	22
2nd in Command -	46	35	1	11	16	17	1	5	23
Wing Officer -	49	19	1	10	27	—	—	—	—
Adjutant - -	46	16	1	8	18	14	1	5	15
Quartermaster -	49	12	1	6	23	10	1	4	20

Punjab Cavalry and Infantry.

Appointment.	No.	With Corps.				In Appointment.			
		Maximum.	Minimum.	Average.	Over Average.	Maximum.	Minimum.	Average.	Over Average.
Commandant -	17	24	½	11	10	17	½	8½	8
2nd in Command -	18	20½	½	10½	11	15	½	6	7
Squadron - - / Wing Officer - -	23	13½	1	9	12	—	—	—	—
Adjutant - -	17	12	2	8	9	11	½	5	7
Quartermaster -	12	11½	½	7	5	11	½	4	7

It is unnecessary to go into the same detail with respect to the return from Madras as it only covers the period from the date of reorganization, 1st November 1865, or nine years two months. The return itself, moreover, is a little confused, for the periods of command, &c., shown do not apparently refer to the regiment of which the period of service is shown, *e.g.*, in the first cavalry the commandant is shown as having been with the regiment for two years four months, and a commandant for nine years and two months. This perhaps illustrates the changes which have taken place in the *personnel* of the Madras corps, but it renders any comparison between the the several returns of little use.

A bare abstract is accordingly given:—

Madras.

Appointment.	No.	With Regiment.		In Appointment.	
		Years.	Months.	Years.	Months.
Cavalry.					
Commandant - - - -	4	7	1	7	8
2nd in Command - - -	4	7	—	6	6
Adjutant - - - -	4	8	—	7	3
Squadron Officer - - -	8	8	3	—	—
Infantry.					
Commandant - - - -	40	3	6	4	6
2nd in Command - -	40	4	1	4	10
Wing Officer - - - -	40	3	3	4	11
Adjutant - - - -	40	6	10	5	3
Quartermaster - - -	40	5	—	6	3

From this it would appear that no Madras regiment has, since the reorganization, just 10 years since, kept one officer in the corps for the whole time.

Bombay.

Appointment.	No.	With Corps.				In Appointment.			
		Years.			Over Average.	Years.			Over Average
		Maximum.	Minimum.	Average.		Maximum.	Minimum.	Average.	
Cavalry.									
Commandant -	7	15	1	7	4	15	1	6½	3
2nd in Command -	7	26	1	13	3	17	1	6	2
Adjutant - -	7	12	1	7	3	12	1	7	3
Squadron Officer -	14	20	4	10	5	—	—	—	—
Infantry.									
Commandant -	30	34	½	8½	9	16	½	5	11
2nd in Command -	30	32	½	13	10	11	½	5	14
Wing Officer -	30	27	½	10	12	—	—	—	—
Adjutant - -	29	17½	½	7	11	11	½	5	12
Quartermaster -	30	17⅓	½	8	13	11	½	5	12

The ½ represent six months or less ; all over six months is counted as a full year.

It is to be noted that a considerable number of the above officers served with the corps, and in some cases commanded them for many years prior to the reorganization.

The foregoing note, it is believed, comprises all the points connected with the officering of the Native army, either called for directly by the Government of India, or offered by commanders or local Governments.

There remains the second division of the question, viz.,—

II.—Rank and File—Native Army.

The correspondence which immediately preceded the present inquiry into the Native armies of India consists of the letters noted on the margin.

Bombay Government No. 3267, dated 1st September 1874.
Military Department No. 722, dated 14th October 1874.
Adjutant General in India No. 2837B, dated 16th November 1874.

The whole history of the case will be found in the Viceroy's note of the 2nd February 1875, in which also the views of his Excellency the Commander-in-Chief on the measures considered indispensable for bettering the position of the soldiers are taken up *seriatim* (see pp. 11 to 27), in which the immediate question of the material position of the Native soldier is mainly dealt with.

In view to procuring material on which to base a final decision, it was determined to call for information on the following points from the Governments of Madras, Bombay, and the Punjab and his Excellency the Commander-in-Chief in India.

Their Excellencies and the Lieutenant-Governor were furnished, by letter dated 17th February 1875, with two sets of blank forms of returns to be filled up for each regiment.

Of these returns, Table I. referred to recruits entirely, Table II. to casualties by desertions, deaths, discharge, dismissal, invaliding, or pension. Each table covered a period of five years from 1870 to 1874 inclusive. At the same time copies were called for of the replies given in the annual confidential reports on Native regiments as to the quality of recruits and efficiency of Native officers for the past three years. On the 22nd February a further return, also for five years, was called for giving information on the following points:—

(1.) Number of soldiers in each year presented before invaliding committees and declared by them to be still fit for the service.

(2.) Number of men so rejected by committees who were again presented within one year and again rejected.

(3.) Number of men so rejected by committees who were again presented within one year and who were invalided.

(4.) Number of men so rejected by committees who were again presented within two years and again rejected.

(5.) Number of men so rejected by committees who were again presented within two years and who were invalided.

(6.) Number of men so presented who died within one or two years respectively.

These returns have been received. The grounds on which information on the particular points above indicated was called for were:—

Table I. to show how far the official reports submitted for five years past to the Commander-in-Chief and the Government bore out the view stated in the Quartermaster-General's letter of 12th December 1874, viz., that in "the general opinion of the officers of the Native army, "the same superior stamp of recruit that formerly sought for service in our regiments is now not "obtainable."

Table II. to test by five years' statistics of the loss and gain of crops, whether the army had lost its popularity or deteriorated in discipline, as evinced by the increase or otherwise of desertions, crime, &c.

Table III. to show the operation of the present invaliding and pension rules, and to ascertain how far statistics bore out the representations of the Bombay Government as put forward in their letter of the 1st September 1874.

Table IV. pertains to both parts of the whole subject. The inquiry relating to the capacity, character, and conduct of the Native officers, and to the quality of the recruits.

TABLE I.

The outcome of Table I. (see accompanying five digests) is as follows:—

BENGAL ARMY.

Bengal Cavalry.—Average monthly strength for 1874, 8,643. The number of men enlisted during five years was 3,673, or an average of 734·6 each year—that is, a percentage, on the aggregate actual strength of the five years, of 8·508.

The number of men wanting to complete the establishment on 1st January 1875, for all the regiments, was 26, or less than one and a half per corps,—the percentage on the actual strength of the year being 0·300.

The remarks of the commanding officers as to quality of recruits are generally favourable.

Bengal Infantry.—Average monthy strength for 1874, 35,704. The number of men enlisted during five years was 17,628, being an average of 3525·6 for each year, or 70½ per regiment. The percentage of the whole on the aggregate actual strength of the five years is 9·898.

The number of men wanting to complete the establishment on 1st January 1875, for all the regiments, was 663, or 15 per corps,—the percentage on the actual strength of the year being 1·856.

The remarks of the commanding officers as to quality of recruits are generally favourable The localities of course effect recruiting, and the liability to service far from their homes deters some classes from enlisting. The remark, however, as to the difficulty experienced of late years in getting Sikh recruits of the old stamp is general. It is, in almost all cases, attributed to the same causes, viz., the greater demand for recruits, the higher wages procurable elsewhere, the general prosperity of the country and the natural turn the Sikhs have for agriculture. The most frequent suggestion, where suggestions are made, is to relieve the recruit of the expense of his kit.

Punjab Frontier Force.—Artillery, Cavalry, and Infantry.—Average monthly strength for 1874, all ranks, Native, 12,938. The number of men enlisted during five years 7,160, being an annual average of 1,432 recruits, or 68 per regiment. The percentage of the whole on the aggregate actual strength of the five years is 7·561.

The number of men wanting to complete the establishment on 1st January 1875 was 200, or 10½ per corps—the percentage on the actual strength of the year being 1·856.

From the remarks of the commanding officers, there appears to be greater difficulty in procuring good recruits, though, except in the case of Sikhs, especially Manjha Sikhs, on the whole very fair men do enlist. The report, however, is not so favourable as that of the line regiments. In regard to Sikhs, the falling off is attributed to the same causes as are given in the line; vide *supra*.

Madras Army.

Cavalry and Infantry.—The average monthly strength for 1874, of all ranks, Native, was 30,368. The number of men enlisted during five years was 6,662, being an annual average of 1332·4 recruits, or, excluding the cavalry, whose recruiting was stopped, 32½ men per regiment. The percentage of the whole on the actual strength of the army for five years is 4·437.

The number of men wanting to complete the establishment on 1st January 1875 was 960, or a percentage on the actual strength of the year of 3·161. Of this deficiency, 408 are due to the four regiments of cavalry. Excluding these, the average deficiency per regiment was 13½, and this is, in a considerable measure, due to service in Burma and elsewhere out of the Madras Presidency, where necessarily there is some difficulty in getting recruits of the classes which compose the corps.

In regard to the quality of the men enlisted in the Madras regiments the reports are decidedly favourable, and the statement is very general that there is no difficulty in getting sufficient men equal in all respects to those obtained formerly.

Bombay Army.

Cavalry, Artillery, Infantry.—The average monthly strength for 1874, of all ranks, Native, was 25,081. The number of men enlisted during five years was 7,421, being an annual average of 1484·2 recruits; or 35⅓ men per regiment. The percentage of the whole on the actual strength of the army for five years is 5·904.

The number of men wanting to complete the establishment on 1st January 1875 was 1,156, being a percentage on the actual strength of the year of 4·609, or 27¼ men per regiment.

This large deficiency is, however, explained by the fact that the invaliding season for the Bombay army falls at the close of the year. Consequently on the 1st January, when these returns were prepared, the invalids and pensioners had just been struck off the rolls, while the recruiting parties had not sent in recruits to fill their places.

The reports on the quality of the recruits are decidedly unfavourable. There is difficulty in getting them at all, and those that are obtained are stated to be decidedly inferior to the former stamp of men. The restriction of the field for recruiting to the presidency,—only 100 "foreigners" per regiment being now allowed—is the most frequently assigned cause for this deterioration. Then follow, higher wages to be obtained elsewhere, carelessness of the non-regimental committees which pass inferior men, insufficient pay, and localization. It does not seem to be generally stated that class for class the recruits obtained have fallen off. The dis-satisfaction arises from the fact that whereas the Bombay army formerly drew very largely on the North-Western Provinces and the Punjab for its *matériel*, it is now restricted to the smaller and less soldierly races of the Deccan, the Konkan, the lower Sind, with a result the reverse of satisfactory to commanding officers. That the present men are good of their kind must be inferred from the highly favourable estimate of them contained in the confidential reports for the past three years: see *infra* note on Table IV., where it is shown that only in nine cases for three consecutive years are the recruits reported to be other than up to the mark, and then it is only a man here and there considered to fall below it.

The recruiting for the Bombay army may therefore be considered satisfactory, so far, that is, as it is contained within the bounds assigned by political considerations.

But the opinion as to the bad effects of this restriction on the *personnel* of the corps is so unanimous, that some account of its origin and continuance may be useful.

In 1821 the Court of Directors, addressing the Government of Bengal, said on a reference from India on the point: "We desire that the troops of the three establishments may be kept "as distinct as possible, and that the recruiting for each presidency may be, as far as practicable, "confined to the respective territories of each presidency." In 1823, because "the military "map periodically transmitted to us exhibits the troops of the different presidencies brought into "contact with each other, in our opinion both unnecessary and inexpedient," they issued further orders to the same end, requiring "the novel system of recruiting the Madras army in the "Bengal Presidency to be altogether discontinued."

This Government thereupon renewed their prohibition. In 1824 the Government of Bombay protested first for the reason "that although the territories subject to the Bombay Presidency "afford abundance of excellent sepoys, it was always thought advisable, for every reason, to "keep up an intermixture of castes." Later in the same year, the ground of objection was changed to the plea (probably the truer one, as it is supported by reports from the several "zillahs") that sufficient recruits of a useful stamp were not to be got within the limits of that Presidency.

The reply of the Governor-General in Council of 23rd September 1824 might be used to-day if it were proposed to throw open the Punjab as a recruiting ground for the three armies. After adverting to the policy of keeping the castes, or rather classes, of the several armies separate, the Governor-General goes on to say, "The same causes which have operated to reduce the "available number of recruits annually from the provinces dependent on Bombay also operate "to a very considerable extent in Hindostan. That peace, tranquility, and security of property "are working the same change probably in a greater degree through the Bengal provinces than "in any other part of India; and that *the profession of a soldier is gradually merging or lost in "that of the cultivator* and all the arts connected with agriculture; finally, that it is with the "greatest difficulty that the Bengal army can keep up its complement of good and efficient men. "But when to this cause (altogether unavoidable and a gratifying proof of the peace and "prosperity of the country * *) are superadded others which tend to double the drain upon "the provinces dependent on this Presidency, and to enhance two-fold the difficulty under which "we labour of completing our regiments, it is incumbent on the Supreme Government to pause "and to arrest the evil, if a remedy cannot be found." The superadded evil here spoken of is the far larger pension given in the Bombay than in the Bengal army.

At this time, of the total strength of the Bombay army, consisting of 25,695 men, cavalry and infantry, 7,465 were enlisted in the Bengal provinces. The proportion was even greater in the Madras army, their golundaz, corps consisting almost entirely of Hindustanis.

When the restriction was relaxed in the Bombay army, if indeed it was ever attended to, there is nothing here to show; but prior to 1857, the recruiting for it in the northern provinces was considerable. In 1857, Sir W. Peel stopped a party of Oudh recruits proceeding to join the 27th Bombay Native infantry, and on the recommendation of Lord Clyde, who considered it inexpedient to send Poorbeeah recruits to Bombay *at that time*, Lord Canning ordered them to be paid up and sent to their homes.

Cons. 6th November 1857, No. 181.

In 1864, Sir W. Mansfield, Commander-in-Chief, Bombay, recommended that the regiments of that army might be allowed to recruit in Hindostan to the extent of one-fourth of each corps. On this, that Government inquired whether it was still intended to maintain the prohibition. It was decided in Council to do so.

Cons. January 1865, No. 704.

In 1867 the point was again urged, but this time by Sir R. Napier, who proposed to limit the number to 150 men per regiment, partly in view to the increased difficulty in recruiting in consequence of the great demand for men for the Abyssinian expedition. The Government of India agreed to the relaxation to this extent.

Pro. November 1867, Nos. 963-965.

In 1869, his Excellency Lord Napier of Magdala issued a general order to the Bombay army to the effect that the number of "foreigners" is to be limited to 100 men per corps, Punjabees included.

Bom. G. O. C. C. No. 972 of 1869.

In 1873, his Excellency's successor, Sir A. Spencer, in urging that Rajpootana should be thrown open to the Bombay recruiting parties, pointed out that the order of 1869 was issued without reference to Government, the inference being that it might be set aside by them. From Sir A. Spencer's letter it appears that in 1863 the Bombay Government had sanctioned the enlistment of 100 Punjabees per regiment, and this was continued in addition to the 150 men subsequently sanctioned. The reduction therefore of which General Spencer complained was from 250 to 100 men per regiment. On this reference the opinion of Lord Napier of Magdala was sought, and his Excellency replied that the measure "would only result in introducing an "additional body of Hindustanis into the Bombay regiments; and considering the advisability "of maintaining the separate nationality of that army, his Excellency would strongly recom-"mend that it should be supplied from the natives of the Bombay Presidency to the same extent "as has been the practice of late years."

On these grounds, the application was rejected, and the remedy proposed was "greater "activity in searching out the proper territorial recruiting field "of the Bombay Army."

Pro. July 1874, Nos. 22 to 25.

The reports now submitted conclude this subject.

The results of Table I. must, it is apprehended, be read and weighed together with that portion of Table IV. which relates to the quality of recruits. The question to be decided on the data thus afforded is, to put it one way, whether "the same superior stamp of recruit that "formerly sought for service in our regiments is now not obtainable?"—or, to put it another way, whether "the recruits who enlist come up to the standard requisite to secure regimental efficiency?"

One point at least may be held to be established, and this is fully confirmatory of the opinion expressed in the Viceroy's note of the 8th February 1875, page 13, where his Excellency says: "I believe it will be found that the Indian army is kept more nearly up to its establishment "than any army in the world," for month by month the Native armies of India in their normal condition are not two per cent. below their established strength.

Table II.

This table, of which a digest has been prepared and accompanies, is perhaps the most important of the series. A brief summary may be given here of the causes of the casualties in the whole Native army, excluding, as throughout this inquiry has been done, the Hyderabad Contingent and the corps immediately under the Foreign Department. The total casualties for the five years are 43,407, or 7·335 per cent. of the whole actual strength, and they are thus divided: Bengal 21,215, or 9·588 per cent.; Punjab Frontier Force 6,791, or 7·171 per cent.; Madras 7,397, or 4,927 per cent.; and Bombay 8,004, or 6·368 per cent. The totals are composed of the following items: desertions, 2,191; deaths, 8,294; dismissals by court-martial or otherwise, 2,860; recruits discharged as being unlikely to make effective soldiers, 3,348; men discharged at their own request under three years' service, 1,743; over three and under four years' service, 1,692; after four years' service, 4,444; men invalided without gratuity and under five years' service, 780; with gratuity over five and under 15 years' service, 1,861; over 15 and under 16 years' service, 3,744; men invalided on ordinary pension of 16 to 20 years' service, 4,885; of 20 to 25 years' service, 3,044; of 25 to 30 years' service, 2,563; of 35 to 40 years' service, 1,658; special pension after 40 years' service, 230.

It will be seen that of the total 43,407 casualties, 10,070 are caused by men voluntarily leaving the service before they are entitled to either good conduct pay or any pension, or by deserting at any time. Of this number, almost the whole occur in the Bengal army and the Punjab Frontier Force, the proportions being 6,284 and 2,245 respectively, or 8,529 in all. It is to these numbers that reference is probably made in the last paragraph of the Adjutant-General's letter of the 30th June 1875: "A fact which appears to have a special bearing on this question is "that out of an army of 37,036 men under the orders of the Commander-in-Chief in India, "17,465 are under 6 years' service, showing that a very large number of men do not find it "worth their while to remain long enough to entitle them to the first-rate of good-conduct pay." Even allowing that of the 3,123 men who took their discharge in Bengal after four years' service, two-thirds did so in the fifth and sixth year, and that all the 1,133 Bengal deserters were under six years' service, the total number leaving before becoming entitled to good-conduct pay will be as nearly as possible 1,000 a year, or 2·700 per cent. per annum, which in an army composed so largely of men from over the border does not seem excessive, or at any rate not so much so as to establish the unpopularity of military service, especially when viewed in connexion with the very small number of similar casualties in the other two armies.

This return brings out prominently the fact that a far larger number of men hold on to the service in the armies of Madras and Bombay than do in that of Bengal and the Punjab Frontier Force. For example, the number of men of the latter forces invalided, of between 25 and 40 years' service, during the five years was 1,057, while in the former they amounted to 3,164. On the other hand, the troops of the Bengal Presidency invalided on pension before 25 years' service was 6,571 as against only 3,164 in Madras and Bombay. These disproportions may probably be accounted for in many ways: the comparative youth of many of the Bengal regiments, the clean sweep of 1857, the different constitution of the medical committees, and the gradual disappearance in Bengal and maintenance in Madras of the system of promotion by seniority among the Native ranks.

Table III.

The returns summarised in the Tables III. attached to this précis refer to the complaints so often brought against the system of the medical invaliding committees, and lately by the Commander-in-Chief of the Bombay army and his Excellency Lord Napier of Magdala. The former objects to the action of these committees, especially in respect to Native officers, as "throwing back upon the Native Army a class of men whose retention in the service is baneful "in its influence, and retards the promotion that ought to be given to younger soldiers;" the latter speaks of the system as being "a frequent source of discord between commanding and "medical officers," and adds, "at present so much is this the case that had not his Excellency "hoped to obtain a more radical cure for existing defects of system, he would have been induced "to solicit Government to sanction the introduction of the military element into the *personnel* "of invaliding medical committees."

The returns were prepared regimentally, and cover five years.

In the *Bengal Army* the number of soldiers presented before the invaliding committees and declared by them still fit for further service was 1,494, or an annual average of 298·8. This, on the total strength of the army for five years, gives a percentage on the whole of 0·675. Of the 1,494 rejections, in the following two years, 177 were brought up again, again to be rejected, while in the same time 554 of them were invalided, 58 having in the interim died.

In the *Punjab Frontier Force* the number of soldiers presented before the invaliding committees who were declared by them to be still fit for further service was 578 or an annual average of 115·6. This, on the total strength of the force for five years, gives a percentage on the whole of 0·610. Of the 578 rejections in the following two years, 93 were brought up again, again to be rejected, while in the same time 204 of them were invalided, 24 having in the interim died.

In the *Madras Army* the number of soldiers declared to be still fit for further service was 2,035, or an annual average of 407. This, on the total strength of the army for five years, gives a percentage on the whole of 1·355. Of the 2,035 rejections, 371 were in two years again rejected and 509 invalided, 51 having died in the interim.

In the *Bombay Army* the number of soldiers declared still fit for further service was 1,283, or an annual average of 256·6, the percentage of the total strength of the army for five years

being 1·020. Of the 1,283 rejections, 147 were in two years again rejected and 409 invalided, 33 having died in the interim.

To summarise the foregoing, in the whole Indian army it appears that on a total actual strength for five years of 591,764, there were, of those brought up for invaliding, 5,390 rejected and sent back to their corps as still fit for further service, in the face of the contrary opinion of the commanding officer. This is somewhat less than one per cent. on the total strength of the forces. Of these 781 were in the course of two years again rejected, and 1,676 invalided, while 166 of those retained within the same time died in the ranks.

This return of course does not show how many men considered by commanding officers unfit for further service were retained in the regiments from the knowledge that possibly the regimental surgeon and certainly the medical committee would be unable, under the terms of the regulations, to pass them, nor can it show how many of the men rejected were so as being malingerers.

Table IV.

The fourth return called for was an abstract of the confidential reports of Native regiments as to the quality of recruits and efficiency of Native officers for the past three years, viz., 1872, 1873–74.

BENGAL.

For Bengal the questions to which replies were required from the inspecting officers of the regular army were as below :—

Cavalry.

Native Officers—*Q.* 24. Whether they are a respectable body of men?

25. Whether they are active, sober, diligent, clean, and smart in their appearance and dress?

24. Whether they appear to be well acquainted with the interior economy of the regiment, and competent to command their troops in the various situations of service?

27. Whether they are duly qualified and are habituated to exercise their troops, and whether all were required to do so on the day of inspection?

28. Whether they have been in the habit of placing picquets, posting videttes, conducting patrols, & c., and whether all were required to do so on the day of inspection?

29. Whether they pay ready obedience to their European officers?

30. Whether their habits are such as to ensure respect?

31. Whether any of the Native officers appear from age, infirmity, or any other cause to be unfit for service.

Recruits.—47. Whether from their general appearance they are likely to be an acquisition to the corps?

The returns being somewhat voluminous, they have been tabulated, giving in a view the general result of the regimental inspections in respect to the above points. The replies are classed under three heads, "favourable," "partially so," "unfavourable."

Bengal Cavalry. 19 *Regiments.*

1872.				1873.			
Question.	Favourable.	Partially so.	Unfavourable.	Question.	Favourable.	Partially so.	Unfavourable.
24	18	1	0	24	19	0	0
25	16	3	0	25	18	1	0
26	15	4	0	26	18	1	0
27	17	2	0	27	19	0	0
28	18	1	0	28	17	2	0
29	19	0	0	29	19	0	0
30	18	1	0	30	19	0	0
47	17	1	1	47	15	3	1

1874.

Question.	Favourable.	Partially so.	Unfavourable.	Question.	Favourable.	Partially so.	Unfavourable.
24	19	0	0	28	17	2	0
25	17	2	0	29	19	0	0
26	17	2	0	30	17	2	0
27	17	2	0	47	15	4	0

The replies to question 31 *q. v.* cannot well come under the head of favourable or unfavourable. The results are however that in 1872 there were 13 regiments in which there were Native officers unfit for the service in every instance almost on account of age. In 1873 there were eight regiments, having between them about a dozen Native officers aged and qualified for invalid pension. In 1874 there were nine regiments, having between them 15 similarly unfitted for service.

INFANTRY.

Infantry.—The questions regarding the infantry differ very slightly from those of the cavalry, but come under different numeration in the report. To save repeating them, the Infantry numbers are here placed below those they correspond to in the cavalry.

Cavalry - - -	24	25	26	27	29	30	31	47
Infantry - -	19	20	21		22	23	24	42

There is nothing corresponding in the Infantry to the Cavalry question No. 28. On the other hand, there is an additional question in the Infantry regarding recruits—"No. 43. Whether they "are of the standard prescribed by the regulations."

Bengal Infantry. 49 *Regiments.*

1872.

Question.	Favourable.	Partially so.	Unfavourable.	Question.	Favourable.	Partially so.	Unfavourable.
19	42	4	0	23	40	6	0
20	37	9	0	42	41	5	0
21	40	6	0	43	45	1	0
22	46	0	0				
		Three regiments were not inspected this year.					

1873.				1874.			
Question.	Favourable.	Partially so.	Unfavourable.	Question.	Favourable.	Partially so.	Unfavourable.
19	46	2	0	19	46	2	0
20	39	9	0	20	42	6	0
21	44	4	0	21	45	2	1
22	48	0	0	22	48	0	0
23	44	4	0	23	44	4	0
42	43	5	0	42	42	5	1
43	48	0	0	43	47	1	0
One regiment not inspected this year.				One regiment not inspected this year.			

. With regard to question 24, the returns show that in 1872 there were twenty-six, in 1873 twenty-three, and in 1874 thirty-four regiments, which had on their rolls one or more Native officers who appeared from age, infirmity, or some other cause, unfit to remain in the service ; all, with some few exceptions, unfitted by reason of their great age and long service.

PUNJAB FRONTIER FORCE.

Infantry.

The questions regarding the *Infantry* of the Punjab Frontier Force are identical with those of the Infantry of the Line. The replies are so uniformly and uncompromisingly favourable, that it is unnecessary to tabulate them as above. The only exceptions in the three years' reports are remarks in 1871–72, that a Native officer of the 3rd Sikh Infantry was not respectable, and was to be invalided, and that some of the recruits of the 6th Punjab Infantry were not up to the mark. In 1872–73 some of the recruits of the 4th and 6th Punjab Infantry were spoken of as weak and sickly, and in 1873–74 two or three of the Native officers of the 3rd Sikh Infantry were not up to their drill, and some of the recruits of the 1st Sikh Infantry, and the 2nd and 6th Punjab Infantry were unfavourably reported on. It may be noted that each year the 6th Punjab Infantry appears to have done badly in its recruiting.

The questions regarding the *Native Artillery* of the force are as follows:—

Native Officers.—20. Whether they are properly instructed, active, and intelligent?

21. Whether they are respectful to their officers, and support their own authority in a becoming manner?

22. Whether they are a respectable body of men?

23. Whether they are active, sober, diligent, clean and smart in their dress and appearance?

24. Whether they appear to be well acquainted with the interior economy of the battery?

25. Whether they are duly qualified to command their sub-divisions on parade?

26. Whether they pay ready obedience to their European officers?

27. Whether their habits are such as to ensure respect?

28. Whether any of the Native officers appear from age, infirmity, or any other cause, to be unfit for the service?

29. Whether any Native officer has been absent from the regiment for an unusual length of time?

All the replies are quite favourable for the three years, with the exception of the Jemadar of the 3rd Light Field Battery, and both the Native officers of the Peshawur Mountain Battery, who are unfavourably reported on.

There are no questions regarding the recruits of the Artillery.

Cavalry.

The questions regarding the *Cavalry* of the force differ in some respects from those of the Line already given. They are as follows:—

Native Officers.—29. Whether they pay ready obedience to their European officers?

30. Whether their habits are such as to ensure respect?

31. Whether any of the Native officers appear from infirmity or any other cause to be unfit for the service?

32. Whether any Native officer has been absent from the regiment for an unusual length of time?

33. Whether the Native officers in general appear to have been properly instructed and to understand their duties in the field and in quarters, and are intelligent and zealous in the performance of them?

Recruits.—47. Whether from their general appearance they are likely to be an acquisition to the corps?

Here again, for all three years, the replies to these questions are uniformly favourable, except that in 1872–73 one Native officer of the 5th Punjab Cavalry is reported to have lost all nerve, and in the following year a jemadar of the 1st is stated not to be respectable.

MADRAS.

The questions entered in the Madras confidential reports as to the efficiency of Native officers, and the quality of recruits, are somewhat less searching than those put in Bengal. They are for *Cavalry and Infantry.*

Native Officers.—22. Whether from their character and conduct they are respected, and whether any from age, infirmity, or other causes appear unfit for the service?

23. Whether they evince aptitude and intelligence in the command of their companies on parade, and in the performance of their duties generally, and render due support and assistance to the wing officers?

24. Whether they are active and diligent in the discharge of their duties, and clean and smart in their dress and appearance?

Recruits.—51. Whether from their general appearance they are likely to become efficient soldiers?

The results are tabulated as below:—

CAVALRY AND INFANTRY.

45 Regiments.

1872.				1873.			
Question.	Affirmative.	Partially so.	Negative.	Question.	Affirmative.	Partially so.	Negative.
22	20	23	0	22	21	20	0
23	32	11	0	23	32	9	0
24	38	5	0	24	39	2	0
51	38	1	0	51	35	1	1
Two regiments not inspected in 1872.				Four regiments not inspected in 1873.			

1874.							
Question.	Affirmative.	Partially so.	Negative.	Question.	Affirmative.	Partially so.	Negative.
22	26	17	0	24	37	6	0
23	31	12	0	51	39	0	0
		Two regiments not inspected in 1874.					

It should be stated that in almost every case when the answer to the first question is not altogether favourable, the ground for objection is the great age of the Native officers: "old and worn-out," "every Native officer is above 50," "too old for active service," "six unfit on account of age and infirmity"—represent the common class of reply to the question as to their fitness. In very few instances is incapacity attributed to misconduct or bad character. Though the questions 23 and 24 are more frequently replied to favourably, the inspecting officers very generally seem to do so with a reservation, more, perhaps, implied than expressed, as to the capacity of the existing Native officers for the more extended duties imposed by the new organisation; but there is no hesitation in their testimony to the willingness, cleanliness, and smartness in dress displayed by almost all these old officers.

Except in the case of the 11th Native Infantry, where the inspecting officer in 1873 utterly condemns the recruits of the year [13 of whom were afterwards discharged on the report of a special medical committee], there is no difference of opinion as to the efficiency and good promise of the men enlisted during the period over which the reports extend. There has, however, been no recruiting for the Cavalry branch of the service. This return appears fully to bear out the estimate of the capacity and character of the Native officers of the Madras army, quoted from Sir F. Haines' memorandum on page 10* of this note.

* See page 2

BOMBAY.

The following are the questions in the confidential reports on the Artillery, Cavalry and Infantry of the Bombay Native Army as to the efficiency of Native officers and the quality of recruits.

Native Officers.—A. Are the Native commissioned officers a respectable body of men, and qualified for their rank?

B. Can they be depended upon for loyalty and attachment to the service?

Recruits.—C. Are they all of the standard height, able-bodied, and likely to make efficient soldiers?

D. Are the recruits from their general appearance likely to be an acquisition to the corps?

Question C is that put in 1872–73; question D in 1874.

It is only necessary to tabulate the replies to the first question, A.

CAVALRY, ARTILLERY, INFANTRY.

41 Corps in all.

——	Affirmative.	Partially so.	Negative.
1872	37	4	0
1873	32	9	0
1874	35	6	0

The replies to question B are without exception in the affirmative. Indeed, the question itself is an unnecessary one on the face of it, for it is very certain no Native officer whose loyalty there was reason to doubt would be retained in a regiment.

Only in nine cases for the three years are the recruits reported to be other than up to the mark, and in these cases it is only a man or two here and there who is considered to fall below it.

The two questions to be decided on the data afforded by Table IV. really belong to different divisions of the inquiry. The latter question regarding recruits has been already disposed of in dealing with Table I. The former question regarding the efficiency or otherwise of the Native officers pertains to the first division of this note, viz., the officering of the Native army. The point, in this connexion, which the return is intended to elucidate is whether "the existing Native "officers are competent to command their troops and companies on all occasions:" see *supra* page 9*.

ee page 204.

Briefly, what light do the data set forth in the foregoing tables throw on the assumption that service in our armies has become unpopular with the natives of India as evinced by (1) an increased difficulty in recruiting, (2) the eager desire of soldiers to be entered on the invalid rolls after 15 years' service, (3) the recent returns of the numbers pensioned and invalided—*vide* the Viceroy's note, page 20.

The Adjutant-General's letter of the 16th November 1874 conveyed further proposals for the formation of a reserve force of pensioners, for the grant of bands and colours to Native infantry regiments, and for the provision of bedding for Native regimental hospitals.

Colours and Bands.—While submitting what appear to be radical requirements for the well-being of the Native army, Lord Napier of Magdala urges upon Government the advisability of sanctioning colours and bands to all corps not already provided with them.

With regard to the grant of colours, his Excellency says: "The feelings of the Native soldiery "associate with colours a veneration very much akin to that which leads soldiers of Western nations "to cherish insignia around which they have rallied in hours of danger and followed on the tide "of victory." It is well, his Excellency thinks, to nourish such feelings and to add every accessory incentive to increase *esprit de corps.*

In March 1864, with the concurrence of Government, the Commander-in-Chief notified by circular that regiments of the Native army which had hitherto possessed colours or to which colours had been issued should have them replaced when worn out, but that they should not be supplied to corps which had not hitherto been furnished with them.

More than half the infantry regiments of the Bengal army under the Commander-in-Chief have colours, there being only 22 out of 49 corps without them, and of these five are entitled to bear honorary distinctions on their appointments.

In the regiments of the Madras and Bombay armies the use of colours is general.

The use of standards with Native cavalry (Bengal) was abolished in 1863 on the recommendation of Sir Hugh Rose for reasons of organisation, and with the concurrence of almost all commanding officers, Sir N. Chamberlain, Daly, Probyn, Watson, Murray and others.

The Commander-in-Chief does not apparently propose their re-introduction.

In respect to bands, only 29 regiments have them (see foot-note, page 235, Bengal Army List), of which eight are corps of the Punjab Frontier Force. Of the Madras army, 27 corps have bands and 24 of the Bombay army, or 80 in all,—leaving 50 regiments of Native infantry, exclusive of Sappers, without them. The regulation regarding bands in the Bengal army is as follows: "550.—The establishment of bands in Native infantry regiments in which they do not "at present exist is prohibited; but those which have been established by sanction are to be "maintained in accordance with regulations." This rule was laid down in 1862 and 1865 for the Line regiments; in 1858 for those of the Punjab Frontier Force. The grant of the allowance for these latter was sanctioned by the Secretary of State on the understanding that proper assurance be given in each case that the amount of subscription from the officers, together with the Government contribution, is sufficient to maintain a band in moderate efficiency. In October 1873 Lord Napier of Magdala recommended that the prohibition against the organisation of bands in Native regiments might be removed, but the Government declined to comply.

Hospital bedding.—The question of providing Native troops with hospital bedding was raised in 1870, when the Government of Bombay recommended the introduction into that presidency of the Madras scale of supplies of bedding and clothing to the sick sepoy, consisting of lined blankets, quilts, pillows, pillow-cases, paillasses and hand-towels.

The Government of India declined to do this on the ground that the privilege would have also to be extended to the Bengal Presidency—a measure considered neither expedient nor necessary (Military Department, No. 596, dated 14th December 1870). In Bengal the regulation provided for sepoys taking with them to hospital their own suttringes and quilts, which every man has to keep up. Against this system Lord Napier of Magdala protested in 1871. Again the Government, after careful consideration, decided that "the present system has answered sufficiently "well, and obviates the difficulties which would probably arise on account of caste prejudices." A later communication (Adjutant-General's, No. 277, dated 19th December 1874) relates to the provision of bedding for all Native soldiers, but it is not quite clear whether his Excellency desired to recommend more than the provision of hospital bedding.

While these returns were in course of distribution, and pending their submission to the Government of India, the Military Accountant-General had been asked to furnish an approximate estimate of the cost of the measures proposed by his Excellency the Commander-in-Chief in November 1874 for bettering the condition of the whole infantry of the Indian army,—viz., (*i*), the grant of a free kit, value Rs. 36, to recruits entering the army; (*ii*) the abolition of "half mounting" as a deduction, a grant being made to each regiment in lieu of Rs. 4 per man per annum; (*iii*) the revision of good-conduct pay and its settlement at the rate of Re. 1 after three years', Rs. 2 after nine years', and Rs. 3 after 15 years' service. He was further asked (*iv*) what would be the probable cost of revising the good-conduct pay of the Native cavalry of the Indian army to the system proposed for the infantry; (*v*) the approximate cost of extending the grant of hutting money; and (*vi*) compensation for dearness of provisions to the Native cavalry.

It is not necessary to attempt to condense Mr. Kellner's report, beyond giving the bare results, the data on which these are arrived at being given in complete and clear detail in his letter. The results he arrives at are that—

				Rs.
The cost per annum of the	1st	measure would be	- -	3,57,840
,,	2nd	,,	- -	3,80,000
,,	3rd	,,	- -	2,03,808
,,	5th	,,	- -	42,000
,,	6th	,,	- -	1,90,924

or a round total, on these five heads, of 11¾ lakhs. For the 4th point there were no sufficient data at hand on which to form an estimate; but it is pointed out that the additional cost could not be material, the rates and periods of good-conduct pay in force in the Bengal and Punjab cavalry already, except in respect to the first grade, assimilating with those now proposed. The Bombay cavalry receive the maximum, or Rs. 30 a month, on enlistment, and the Madras cavalry the same rates as the infantry. There is also to be considered the first outlay in adopting the system of hutting allowance in the Silladar cavalry. Probably it would be within the mark if the whole extra charge involved by the Commander-in-Chief's proposals, including that for increased pay to Native officers of infantry (see page 12* of this note) and the additional ones sent for report from the Military Department is placed at 19 lakhs, or 190,000*l.* per annum.

* See page

This estimate does not take into consideration the cognate question of a general increase of hutting allowance throughout the Indian army—a subject which is under separate and special consideration. And it does not fall within the scope of an estimate framed on existing data to make any allowance for the certain increase to the cost of the kit and half-mounting when the one is given free and the other is given in regimental contract.

These points are, however, referred to here in connexion with a further communication received from the Adjutant General* supporting by further data, and by reference to Captain Williams' History of the Bengal Native Infantry from 1757 to 1796, the views put forward by his Excellency in November 1874 as to "the growing unpopularity of the military service, the result of the decreased value of a rate of "pay which, fixed many years ago, was then suitable for the necessities and requirements of a "soldier, but now leaves him, when all deductions are paid, but the means of bare subsistence."

* No. 1482, dated 30th June 1875.

To the letter under notice are attached six Appendices, as follows:—

A.—An extract from Captain Williams' history above mentioned, published in 1817, showing that prior to 1796 the sepoy on Rs. 7 a month was well off, though he had to bear the whole charge of hutting himself and received nothing from the State.

B.—Return giving cost of soldiers' regimental necessaries in 1848 and 1875, showing an increase in the cost per man per mensem in the last 20 years of Rs. 2-1-1, or approximately of one one-third.

C.—Returns giving the cost of food for the years 1860–65–70–75 in the several large stations of the Bengal Presidency, showing the fluctuations in prices.

D.—The returns of recruits which have been with each regiment during the past five years. This is given "with a view of showing how large a deduction it is necessary to make on this "account from the effective strength of the army."

E.—An abstract of replies from commanding officers on the subject of the difficulty of getting recruits.

F.—A return showing that 17,465 men out of the total of 37,036 under his Excellency are under six years' service, "showing that a very large number of men do not find it worth while "to remain long enough to entitle them to the first rate of good-conduct pay."

With respect to the Commander-in-Chief's proposal for the formation of a reserve, and, with this object, of altering the terms of invaliding and pension in the Native armies, it is understood that it is not intended to take up these questions until the Government are in a position to appreciate fully the liabilities which these and other considerable changes will involve. To enable the Government to do this, it was resolved that a decision must first be come to as to whether any material changes require to be made in the organisation of Native regiments and in the system under which British officers now serve in the Native army (see the Viceroy's note, page 27).

This information has been procured and is submitted with the accompanying note.

It will be observed that the Commander-in-Chief in India proposes no change whatever in the existing organisation of the Native army, whether as concerns its officering, its rank and file, or its regimental system. So far, therefore, as his Excellency is concerned, the ground is clear for the adoption of the financial proposals which his lordship has submitted for the consideration of Government.

But the case is different in Bombay, where considerable changes are urged in respect to the provision of British officers and to regimental organisation, and still more so in Madras, where the local government strenuously advocate a return to an organisation which differs but very little indeed from that which obtained throughout India before 1857, except of course in respect to the enhanced rates of pay, &c., subsequently conferred on the Native ranks.

If, therefore, the foregoing view of the intentions of the Government in respect to these preliminary inquiries is correct, it will remain in the first place to decide whether the existing army organisation is to be maintained for all India, or whether one system is to be so maintained but modified in its details, or whether it is to be abandoned altogether, or whether each army is to serve under its own system of promotion and organisation.

Meanwhile it is apprehended that it will not be necessary to postpone to the consideration of the great question above propounded the comparatively minor points of free kit, half-mounting and colours, in regard to which the actual organisation of a regiment is of no concern.

This case has been longer in hand than was anticipated. The précis could not be fairly begun until the receipt of the views of his Excellency the Commander-in-Chief, which were received on the 16th August. Since then the press has been so fully occupied with work for other departments, that it has proved a work of time getting the figured statements, &c. out of hand.

13–9–75. A. J.

ENCLOSURE F.

NOTE on the Organisation of the Native Army of India.

INTRODUCTION.

The various questions connected with the organization of the Native army of India are so extensive and so important, that I would almost shrink from embarking on a discussion which involves every one of them ; but it seems to be the desire of Her Majesty's Government that there should be a comprehensive review of the whole condition of that army, and the Governor-General in Council has caused a variety of information to be called for to enable that review to be made. The replies to that call for information have now been collected, and it therefore becomes my duty to submit to the Viceroy in Council the views I am led to form, and which I do not record without a deep sense of responsibility,—a responsibility greatly increased by the belief that this perhaps is the last paper of importance I shall write as a member of the Government, relating to that Native army with which I have now been more or less connected in various capacities for nearly two-and-thirty years.

CHAPTER I.

Bengal Army—British Officers.

1. My views as to the Bengal army must, of course, be greatly governed by the personal experience I have had, and I propose first to deal with such questions put forward by the Government only so far as it affects the Bengal army and Punjab Frontier Force, with which, of course, that experience mainly lies. If in any case my opinions seem presumptuous, I would submit that of course they can only be taken for what they are worth, but that they are based on the following experience. For the thirteen years preceeding the Mutiny I was only absent from duty during a few weeks, and in that time held successively the positions of Subaltern with a Native regiment, Adjutant to the same, Brigade-Major of the Peshawur district, Assistant Adjutant-General of the Peshawur and Sirhind Divisions (including the post of Assistant Adjutant-General to the Camp of Exercise at Umballa in 1855, the first camp of the kind in India), and Assistant Adjutant General at Army Head-quarters, intermediately rejoining my regiment for service against the Sonthals for five months in 1855–56. During these years, besides, I may say, having an intimate acquaintance with my own regiment on active service and in quarters, no less than 35 out of the 84 regular regiments of the Bengal army had served in the district or division of which I was Staff officer ; several of these I had served with in the field also, and I was more or less acquainted with 26 out of the remaining 49 regiments, and with some of which I served for considerable periods in quarters or in the field. I was also well acquainted with many of the regiments of irregular cavalry and of irregular or local infantry and of the Punjab Frontier Force.

2. During the mutiny I served at different times with 22 of the existing regiments of the Bengal army and Frontier Force ; and subsequently to the mutiny, on tour with the Commander-in-Chief as Acting Adjutant-General, or on subsequent opportunities, I have either at their stations or at camps of exercise seen the great majority of corps of the Bengal army. It is true that this from a military point of view was, during the last twelve years, as an amateur ; but this position is not without its advantages combined, as it often has been, with conversations with the officers and with a careful study of the confidential reports on corps for many years past.

My original predilections, I may say, were all in favour of the organization of the old regular Native army. I was fortunate enough to join a regiment in good order and with much *esprit de corps*. It distinguished itself on service and remained actively faithful during the Mutiny. Still, slowly and somewhat unwillingly I became keenly alive to the many defects of the old system.

3. Apologising for this digression and merely remarking *en passant* that I have already had occasion to note more or less frequently on many of the topics now to be discussed, and that I shall occasionally have to refer to those notes, I will take the several points *seriatim*.

System of providing British Officers for the Native Army.

4. The Commander-in-Chief in India, on this head, says that the system as a whole appears "to "work better than any which has been proposed, and his Excellency does not recommend any "alteration in it." I agree with his Excellency, and would strongly recommend that no change should be made. We have obtained for the Bengal army under the present system 363 candidates, who, I believe, are, on the whole, a most excellent body of officers. By this system, or by something of the kind, we alone secure the avoidance of those evils which were apparent in the old Native army, namely, that officers joined who might be, and usually were, ignorant of their duty as officers, unacquainted with the language of the men, and entering the Native army perhaps against their own views and certainly with no knowledge of what that army was like.

5. If a supply of officers is not forthcoming under the present system, we shall have to modify it ; but as respects Bengal there seems little reason to anticipate a failure of supply.

6. I attach the greatest importance to that part of the present system which secures to officers of Native regiments a training in British regiments. So strongly have I always felt this, that although I had seen as much of British regiments as nearly any Indian officer could, and been

staff officer at the inspection of many, I so keenly felt the great advantage to be gained by a practical acquaintance with the interior details of a British corps, that, on the first opportunity I had in England after the Mutiny, I obtained permission to be attached to a regiment at Dover, and I believe benefited much by the measure.

7. My notes of 1st March 1873, and 30th January and 28th June 1875, attached as Appendices A. B., and C., give my views on the alleged defects of the present system of appointing officers to Native regiments.

System of Promotion of British Officers in Native Corps.

8. It is to be recollected that there have been great difficulties with respect to the officers,—not only has the regimental establishment of officers been reduced, but a considerable number of regiments were reduced also. Hence many officers became unemployed, some of whom had very excellent qualifications. These officers had to be gradually provided for. On the other hand, some very young officers had, during the war of 1857–58–59, risen to commands or to positions unusual for officers of their standing. Thus difficulties were created, and seniors in rank became placed at time in regimental positions below their juniors. This, however, was no novelty, the cases have after all not been very numerous, and will become fewer. In fact, no difficulty need be apprehended in future on this score as respects officers who are efficient. The difficulty will arise with inefficient officers, and in this respect a remedy has to be discovered, not only for the Indian, but for the British army. The problem is how to get rid of officers who, though respectable, will never be efficient in the higher grades, and how to secure an adequate flow of promotion in corps.

9. The Commander-in-Chief proposes to meet this by requiring officers to retire on the pension to which at the time they may be entitled, if they are found wanting in military capacity or unfit for the duties of their position, and if Government cannot provide them with some employment to which they may be suited. His Excellency further proposes that to secure regimental promotion all officers shall, on attaining 31 years' service, when they become colonels, vacate regimental appointments, but be eligible for re-appointment for five years if they are thoroughly efficient. This would place out of employ one portion of officers at about 49 or 50 years of age, and another portion at 54 or 55 years of age, beyond which age no officer would be found with a regiment.

10. As to the first proposal, I do not see much difficulty, except as to the way in which an officer is to be declared unfit. Of course in cases of misconduct officers are always liable to removal from the service, but with an officer of irreproachable character we should have very clear proof of unfitness before removal. Mere unfitness for promotion should not lead to an officer's removal if he was fit for the situation he held, unless his standing had become such as to render his retention in it inconvenient and unsuitable. The Government would in all such cases decide on the reports of inspecting and other superior officers sent up by the Commander-in-Chief, and on his Excellency's opinion. Such cases would be very rare under the present system of admission; but when they do occur, I agree with the Commander-in-Chief that removal to the pension list is expedient, unless Government has some employment in which the officer may be useful. To keep an officer unemployed who is unfit for any duty seems to me wrong, and is certainly attended with various evils.

11. While an occasional transfer of an officer from one regiment to another is no doubt advantageous, and in some cases necessary, and it may at times be proper to bring in an unemployed officer of ability, I attach much importance to securing regimental rise as the general rule, without reference to the varied views that may be held by successive Commanders-in-Chief. I think, therefore that whenever a vacancy occurs in a corps, the steps should go in the regiment, unless the officers for promotion are not qualified for advancement, or are too young to be advanced; but in all cases when superseded, the grounds should be explained through the Adjutant-General's Department, where they would remain on record. Speaking generally, the rules regarding regimental promotion contained in Appendix A. with Adjutant-General's letter seem suitable.

12. The Commander-in-Chief's proposal as to requiring officers to vacate regimental situations after 31 years' service, unless specially re-appointed for five years, is one the expediency of which seems to me open to doubt. At all events I would advise that we should first try the effect of an alteration of the pension rules in the direction of encouraging earlier retirement than at present, and to cease to give as far as possible the great inducement we do at present to officers to keep on in the service. It is also desirable first to see what measures are devised by the Commission now sitting at home to provide for officers who may vacate regimental employment in the British army under the system now in course of introduction.

Supersession of Senior Officers by their Officers in Regimental Appointments.

13. This point has been already dealt with in the last paragraph. The cases of the kind at present are said by the Commander-in-Chief to present no greater difficulties than are to be found in a large number of British regiments serving in Bengal. There is every reason to believe that fewer cases still will take place in future, and the subject is one on which I need hardly dwell further.

Proportion of Senior to Junior Officers, and Supply of Young Officers.

14. With an army in which all admissions were stopped for several years, and in which the retirements, owing to special reasons, were very few, the proportion of senior to junior officers necessarily became very great. The evil is gradually being removed, but still continues to some extent, especially in the Madras army. In a short time, however, especially if retirements are liberally encouraged in Madras, there ought to be no inconvenience on this head. It is to be

recollected that it is not so much the rank held by officers that is objectionable, as the advanced age of many of them. No one can say that an officer may not properly become a major after 20 years in the army, or a lieutenant-colonel after 26 years, and the duties of the Native army are such on its present organization that it does not much matter what proportion of the four juniors in each corps are captains, or what proportion subalterns, or what proportion of the three seniors are lieutenant-colonels, and what proportion majors. When the army reaches its normal condition, that is, when nearly all the officers are men who have entered as young officers from the British service (and even now all those of 13 years' service and under are in this category), there is no reason to apprehend an excess of superior officers, considering the nature of the duties, especially if the pension rules are revised so as to encourage retirement at an earlier period than at present.

15. As to the supply of young officers, I have already made some remarks in preceding paragraphs of this memorandum. The Commander-in-Chief does not anticipate any failure of supply from the source which, under the adverse circumstances described by Lord Napier of Magdala, has already given us 540 officers in the three Presidencies. If, however, officers can select their Presidency, I apprehend there may be a deficiency in Madras. If a deficiency really seems likely to continue, there will never be any difficulty in obtaining a direct supply of officers, though I think this source will hardly meet our wants in as satisfactory a way as the present system of obtaining officers already trained.

Withdrawal of Officers from the Army for Staff or Civil Employment, and Return of Officers from the latter to the former.

16. That the withdrawal of officers in Bengal from regiments for all the army staff departments and for civil and political employ is not excessive and cannot exercise an injurious effect on the army, I think is evident from Appendix D. attached to the Adjutant-General's letter. From this return it appears that the 68 Native regiments under the Commander-in-Chief have supplied 83 officers in the five years ending the 31st December 1874. Thus on an average each regiment has contributed one officer in every four years.

17. It is not at all likely that this proportion will be exceeded in future, the tendency clearly being to rather reduce than increase the number of officers in civil and political employ, while there is no likelihood of any material increase to the army departments which have to look for their supply of officers to the army, it being in most of these departments essential, and in all of them desirable, that those who enter them should have a good knowledge of regimental duty and of their profession generally.

18. While the drain on regiments, then, is small, there can be no doubt that the possibility of obtaining these detached employments offers an inducement to young officers to come forward for the Staff Corps, and the regiments rather gain than lose by officers leaving them after a few years' service, when they find that their taste is rather for other occupations than that of a regimental officer. It is to be observed that all but three of the officers withdrawn were subalterns or captains, and about three fifths of the whole were subalterns. Indeed an officer's chance of withdrawal for any but purely military employment after he has obtained the rank of major is very slight.

Note.—In reality there are only 35 captains and subalterns, for two are reckoned twice over, each having held two appointments which they resigned, or which were reduced. Both are now employed.

19. During the same five years 64 officers were returned from departments or from civil or political employ to military duty under the Commander-in-Chief. Of these, only the captains and subalterns necessarily went to regiments. These were 37 in number, so that it may be reckoned that a corps received back one officer in nine years. Even this officer need not, unless thought quite fit be placed in any appointment in the corps, but may be simply attached for duty. As, however, he cannot be very old, possibly has not been very long in detached employ, may have been in a situation where he was able to keep up military knowledge, and presumably may have had some merit when selected for staff or civil employ, it might reasonably be expected that some at least would be rather an acquisition to corps than the reverse.

20. The foregoing remarks apply to captains and subalterns only; but in the same five years 27 majors, lieutenant-colonels, and colonels have been relegated to military duty; that is, a little over five a year. These officers simply do garrison duty at stations, unless specially appointed to situations by the Commander-in-Chief. No doubt some of these officers, in consequence of the exigencies of the time during and just after the Mutiny, were placed in positions for which they were not well suited. Under the present system officers have to pass so many tests that it is hardly possible for an inefficient man to enter a department permanently, and if while on probation he shows that he is not suited for it, or fails in his examination, he returns to his corps, and during his short absence can hardly have materially deteriorated as a regimental officer.

21. During the last few years reductions and the discovery of officers' unfitness for posts have caused the return to military duty of a far larger number than we may anticipate in future, but after all the number has been insignificant. If we analyse the list in Appendix F., we find that of the 27 field officers sent back, eight came back in consequence of reduction of office or return to duty of the officer for whom they have been officiating; and of these eight, two have received regimental appointments from the Commander-in-Chief, one has been placed in political employ by the Government, one has retired on a pension, one has succeeded to colonel's allowances and has gone home, and one is residing at home on English pay under G. G. O. No. 797 of the 12th August 1872, leaving only two in this category who are employed on garrison duty.

22. One has returned to military duty as having vacated his special duty by going on furlough. He is now on furlough.

23. Eight have vacated appointments by resignations. These resignations, it may be observed, are not now permitted, save in cases of ill-health or from some special causes deemed satisfactory by the Government. Of these eight one is dead, one is residing in Europe on English pay, one has received a regimental appointment from the Commander-in-Chief, one has been employed by Government, and two have retired, leaving two for garrison duty.

24. Two have reverted to military duty, owing to having exceeded the prescribed period of furlough, and of these one has received an appointment under Government.

25. One vacated civil employ on attaining the age of 55, but he retired a few months afterwards.

26. Six reverted to military duty owing to departmental inefficiency or remissness. Of these one has retired, one has been placed at the disposal of the Home Department, and one has been recently applied for by a municipality. Three therefore remain for garrison duty.

27. One of the field officers included in the list lost his appointment for misconduct, but as he was at once recommended to the Secretary of State for removal from the service on a pension, a recommendation which was acceded to, he can hardly be considered to have been really sent back to military duty under the Commander-in-Chief.

28. It thus appears that out of 27 field officers remanded to military duty in five years only eight are really now on the hands of the Commander-in-Chief, and doing garrison duty in India, not a very large number.

29. Of the 35 captains and subalterns sent back, nine returned owing to reductions; of these one has died, and all but one of the others is now holding a substantive appointment under the Government or the Commander-in-Chief.

Nine resigned their appointments, of whom one is in Europe, and six have obtained appointments, leaving two for regimental duty in excess of establishment.

Eight were remanded for departmental inefficiency, of whom one has died, one is in Europe, and the remaining six are holding appointments.

Three have been relieved by the return of officers from furlough, but have now other appointments.

One completed a special duty, and is now in England.

One vacated an appointment on promotion, but has received another situation.

Two vacated from temporary employment, but now hold appointments.

Two were removed for misconduct, which in one case was followed by removal from the service, and in the other case the officer has been re-employed.

30. Thus, of 35 captains and subalterns replaced under the orders of the Commander-in-Chief in the last five years, only three who are in India and three who are in Europe remain unprovided with appointments.

31. The foregoing analysis shows, I think, that neither the withdrawal of officers of late years in Bengal or their return to duty under the Commander-in-Chief can have exercised any really prejudicial effect on the Native army.

Whether a system of seconding should be extended to all Military Appointments.

32. This system has been applied to brigade majors, who thus continue to be borne on the rolls of their regiments while absent for three years on the brigade staff. On the whole I support the Commander-in-Chief's proposals that the system should be extended to all purely military staff appointments, except the command of divisions and brigades and the heads and deputies of the Adjutant-General's and the Quartermaster-General's department, and that the period of tenure of such appointments be reduced from five to three years. The last condition is not a necessity of the proposal, and I am doubtful if the staff duties will not suffer by the reduction, while there seems no more reason why officers in the Indian army should not go on the staff for five years than those of the British army. There is no reason why they should forget the details of regimental duty during absence for five years in a military appointment. On the other hand, if the absence only lasts three years, there will be a larger leaven in regiments of officers with valuable staff experience, so that though I should prefer a tenure of five years to one of three, I do not very strongly object to the latter.

33. Including the brigade majors who are already seconded, I calculate that there are 76 officers in Bengal who would thus be retained on rolls of regiments including the officers of the garrison instruction, musketry, and gymnastic departments. Half of these, or 38, might probably belong to the Indian service, and as it would certainly be an advantage that some should be taken from the Frontier force, we should have less than one officer seconded in every two of the 85 corps of the Bengal army and Frontier force.

Rules of Military Promotion for Officers employed in Civil Departments of the Army, or in Civil Political Employ, and mode of filling Appointments in the Army, Pay, and Commissariat Departments.

34. Lord Napier of Magdala does not think it necessary that any change should be made in the rules under which officers in civil departments of the army, or in civil or political employ, now obtain promotion, and he would supply the ranks of the Commissariat, Pay, and Survey Departments as heretofore from the army.

35. As respects these three last-named departments, I think no one can desire a change, and the same applies to departments even more necessarily filled by soldiers, as that of the Judge Advocate-General, Military Secretariat, and two or three small departments connected with the army. In all these departments officers should have had a military training, and should have a knowledge of both the British and Native armies. It is true that in most of them an officer has a career before him which, in the majority of cases, keeps him away from regimental duty, or from the purely military staff, for the rest of his life, but still he has constantly to do with military affairs; in many of the departments he is habitually with troops, and has to accompany troops into the field, and in the Survey Department the officers of the Staff Corps share the duties with officers of Royal Engineers. It is not at all uncommon, too, for officers in the higher ranks, to interchange between what are considered the combatant and non-combatant staff respectively. For instance, an Adjutant-General of the Army was transferred to that appointment from the post

of Commissary General; the very last Commissary General, who had never served a day in the lower grades of the Commissariat Department, came direct from the post of Brigadier General at Agra; the last Military Secretary to the Madras Government came from the command of the Punjab Frontier Force; and I myself, when nominated Military Secretary to the Supreme Government by Lord Canning, was Deputy Adjutant-General of the Army and Officiating Adjutant-General.

36. It seems quite right to maintain the present system which I believe has worked well, and I certainly would not introduce a civil element into any of these departments, a measure which has been sometimes talked of, but seems to me to have little to recommend it. When I say I would maintain the present system, I do not mean that I would object to seeing the very junior appointments in the Military Secretariat held by officers for a limited term who should then return to the army, for I think there might be a great advantage in this, and such officers later on might often advantageously be selected for the higher appointments in the Secretariat, which should be permanent, for without at least a permanent secretary, deputy, and first assistant, I do not see how the continuity of office procedure and traditions could be carried on. As it is, the elements of change in India are many and often produce unfavourable results.

37. In the larger departments of the commissariat, accounts, and survey, an officer entering at the bottom practically continues in the same line throughout his service, and there seems no good reason for altering this.

38. The Commander-in-Chief further does not recommend any change in the way in which officers in the civil and political departments obtain promotion. His Excellency gives no reasons for this opinion, and it is well known that many hold a contrary view and consider that it is wrong to allow a man who has spent many years in civil life to rise in military rank, and that such a system is especially unjust to those who have never abandoned military duties.

39. A great deal has been written of late on this subject, and of course if the interests of the State do not require a certain number of military men to go into civil or political employ, the officers of the army can have no sort of claim to such employment, and no doubt the forfeiture of all claim to increased military rank, or to rise beyond a certain point, would seriously affect the desire of officers to enter civil employ. Whatever may be decided for the future, it may be assumed that all officers now in civil or political employ, who entered it on the faith of rising in military rank, must retain that privilege. Certainly all officers who have been any time in such employ have a title to retain the privilege, even if it was decided that officers who had only been two or three years in civil employ should be given the option of giving up claims to promotion beyond a specified rank, or of rejoining the army.

40. I would certainly leave matters as they are with respect to all now in civil or political employ, and whatever cavellers may say, I venture to assert that no army need be ashamed of the civil and political officers who bear rank on the lists of the Indian services. It is not necessary to refer, except very briefly, to the many distinguished soldier statesmen who have now passed away, but whose memory is cherished alike by civilians and by soldiers—Malcolm, Munro, Ochterlony, Lawrence, Outram, Durand, and a host of others less prominent. With most of these it is difficult to say which was the most preeminent, their reputation as soldiers or as civilians, but knowing three of those I have named, I can safely say that they would have hesitated to continue in civil situations if their doing so involved what would amount to a serverance from the army. Of high military civilans in the present day, Sir H. Daly, General R. Taylor, and Colonel Keatinge are very distinguished soldiers. Sir R. Meade, Sir Lewis Pelly and others who have not perhaps seen as much service as the three first mentioned, are by no means feather-bed soldiers, and experience has shown that on our various frontiers where military civilians most abound, they run a far greater risk to life or limb than the vast majority of the officers of the army are usually called on to encounter.

41. With respect to officers hereafter appointed to civil employ, no doubt the Government can frame any rules it pleases. A rule, for instance, might be framed, that after an officer had been five years in civil employ, in which it was desired to retain him, he should be required to elect to rejoin the army or to become a civilian altogether, and subject to conditions as to pensions, &c., exactly like those of the civil service, or any other that might be thought more suitable; or he might remain in the army, but be barred from rising beyond a certain rank. I am inclined, however to doubt the necessity or expediency of any such measures, and in case of any steps of this kind being contemplated, I think it would be essential for the Government to reserve to itself a full power to place military officers of rank in political or even civil situations for a time, or even permanently, without subjecting them to any formal professional disabilities.

42. What is wanted I think is to place a limit on the withdrawal of officers of the army for civil or political employ. As already shown, the withdrawals in the past five years have not been excessive in Bengal, and I do not think, unless some great exigency arose, that the proportion withdrawn in that period should be exceeded in the future.

Sufficiency of the present Complement of British Officers for Native Regiments in Peace and War.

43. Lord Napier of Magdala is not prepared to recommend any increase to the complement of British officers with Native regiments. I agree with his Lordship, and with nearly every one of the reasons assigned by him for his opinion.

44. It would be a retrogade measure of the worst description in Bengal to degrade the Native officers from the charge of troops and companies. It is to be recollected that in every cavalry regiment now existing in the Bengal army, or which serves directly under the Government of India, the system of having native officers to command troops has existed from the day they were raised, and the same system has always obtained in 60 out of the 73 regiments of infantry; while in the 13 corps which belonged to the old regular Native army, or were formed out of the remains of several corps belonging to that army, the new system has been in full force for 12 years.

45. It appears to me wise policy to train up Natives to efficiently command troops and companies, which I think there is no manner of doubt can be, and is done. I would stop at that point, though I have no doubt, out of the hundreds of Native officers thus brought forward, some would always be found (as was the case with Native officers of the Punjab force in 1857) capable of raising and commanding battalions.

46. It also appears to me wise not to have a large body of European officers present with Native regiments, with little or nothing to do, as was the case formerly. Now the officers have adequate work, adequate responsibility, and, I may add, adequate pay. In fact, an officer can feel that he has real work with his corps, and that his prospects in it are not at all to be despised. Even without much good fortune, an officer of 20 years' service will in almost every case be at least a wing officer, and as major be receiving Rs. 870 a month, and he may reasonably hope to be a second in command on Rs. 910 a month before he has served much longer, and if not commandant at 26 years' service, he will as lieutenant-colonel and second in command draw Rs. 1,097 per mensem. In old days there were many subalterns of 20 years' service on Rs. 286 a month, including company command allowance, or less than a probationer now receives, and there were captains on Rs. 445 a month who had served for 30 and 35 years.

47. I believe for purposes of Indian field service the complement is sufficient, and that casualties such as may be anticipated could easily be supplied. If a regiment went on very distant foreign service, it might perhaps be expedient to send an additional officer or two per regiment to meet casualties, just as formerly a fourth officer was allowed on the establishment of each troop and company of a British regiment in India, while three sufficed at home.

48. As respects the sufficiency of officers to meet the circumstances and casualties of field service, the Commander-in-Chief has done me the honour to extract part of a note of mine of the 18th September 1869. As that note enters largely into the question of our reserves of officers I annex it in full as Appendix D. I have no doubt that under the present system we have sufficient officers, and I would call attention to the circumstance that the Nusseree and Sirmoor rifle regiments, with an establishment of three British officers, were prominently engaged with much distinction in the battles of Alliwal and Sobraon. Irregular cavalry regiments constantly distinguished themselves on prolonged field service with only three officers, and in our early wars infantry regiments had but very few European officers present with them.

49. I agree with the Commander-in-Chief that the number of officers should be the same in all regiments liable to be employed on like duties; that is, speaking generally, the troops under His Excellency and the Frontier Force. Regiments employed locally on particular duties may reasonably have a special establishment, each case being dealt with on its own merits For instance, I imagine that the establishment of a commandant, a second in command, an adjutant, and a subaltern quite suffices for the Meywar Bheel Corps located at a permanent station. For the Hyderabad Contingent, proposals to increase the establishment of officers are now before Government, but it is doubtful if the measure is desirable, as it would tend to lower the status hitherto held by the superior Native officers.

50. In dealing with this part of the question we must recollect that if we have our present organization of corps with squadrons or wings, we must have an establishment of officers suited to that organization, and that without such an establishment of officers in a corps, we should not adopt the squadron or wing system, but leave the troops and companies under Native officers, and generally supervised by the commandant, and, under his orders, by the other British officers.

Is Alteration in Organization of Native Regiments desirable to insure a more efficient Supervision by the British Officers.

51. Under this head His Excellency the Commander-in-Chief has entered into the question of the composition as regards castes or races of Native regiments, as well as respects the organization with companies, squadrons, wings, battalions, or double battalions. As I purpose to deal separately in another chapter with all questions directly affecting Natives, I will here confine myself to the question of organization as it affects British officers.

52. In the cavalry the squadron is undoubtedly the tactical unit. In all foreign armies the squadron has its commander, and if the attempt to organize the British cavalry on the squadron system failed after an imperfect trial, it was because the establishment of officers was unsuited to it, there being a captain to each troop and no special grade for the squadron commander. Hence of two captains of equal rank and pay, one commanded a squadron and the other a troop only, while there was no separate captain for one of the two troops of each squadron. Half the captains were in some sort degraded into inferior positions and resented it, especially as they had paid as much for their commissions as the captains in command of squadrons. Hence the system broke down because the grades of officers were unsuited to the squadron system.

53. In the Native cavalry, observing the broad principle of leaving troops under Native officers, we have a British officer of some standing to command each squadron. He has a command of 152 men and 152 horses; and this is quite sufficient to give an officer enough work even in time of peace, and is a command sufficiently important and large to befit an officer of considerable standing.

54. A subaltern to each squadron is hardly necessary and has not been allowed. There being only two troops in a squadron, the constant presence of a subaltern would perhaps interfere with the position of the Native officers; but two subalterns are allowed per regiment, one of whom does the duty of quartermaster, which is light in a Silladar regiment, and both are available to take the place of absent squadron commanders.

55. Besides this, a regiment has a commandant and an adjutant. The appointment of a separate second in command has at times been advocated, but it is, I believe, unnecessary, if not undesirable. The squadron commanders, I think, may fitly be next to the commanding officer

without any intervening link, and, I think, while a separate second in command would usually have little to do, his presence might perhaps be rather hurtful than otherwise to the general interests of the regiment.

56. In the infantry, the next division under the British system, above that of the companies, is that of the wing or half battalion. Leaving the companies therefore under Native officers, each wing has a commandant with a subaltern to assist him. A wing of infantry consists of four companies and of 356 men of all ranks. It is quite a command for an officer of standing and gives its commander and his subaltern abundance to do, especially as they have to conduct the musketry instruction of the entire wing. The subaltern besides assisting the wing commander, takes his place during his absence.

57. In addition to these, the regiment has a commandant, an adjutant, and a quartermaster. A second-in-command, apart from the wing officer, would be a superfluity, and perhaps be objectionable for the reasons I have stated with respect to the same appointment in the cavalry.

58. I see no reason to alter the organization of either branch as long as we maintain the principle of placing Native officers in command of troops and companies. If it was settled to depart from this system, then I think in the cavalry it would still be desirable to maintain the squadron organization, but it would be necessary to give a subaltern to each of the six troops instead of two to the regiment, as at present. For the infantry, under such a change, I would reduce the companies to four, each of the strength of two companies on the present establishment, or 178 in all, and give each of these companies a commander and a subaltern. This, with a commandant, an adjutant, and a quartermaster, would give eleven instead of seven officers to a regiment; but I do not think this change is desirable, and certainly not so in Bengal, where it is my earnest desire to see the system of Natives commanding troops and companies continued and developed.

59. The formation of two or three battalions into one regiment has been advocated, but I agree with the Commander-in-Chief that this is not called for. None of the reasons which have prevailed in the British army in bringing about the linking of regiments together with a common depôt for two corps seem to have much weight as respects the Native army. Each commander of a corps is responsible for and arranges for his own recruiting, save in the exceptional case of foreign service. It is altogether undesirable to interfere with this system, and Native corps which have never had any connexion with each other would not at all care to be made second battalions of another regiment.

60. The one advantage claimed is, that by putting two or three battalions together a cadre of officers of sufficient size will be formed to ensure an equalization of regimental promotion. It does not seem to me that the measure would at all insure this advantage, while any system by which transfers would often take place from one battalion to another, would be very disadvantageous. The mere fact of a transferred officer coming from one battalion of a regiment to the other, both probably, under our necessarily scattered distribution of the army, never having served together, would give the transferred officer no more knowledge of or influence over men of the battalion he came to than if he came from a corps quite unlinked with it. The system indeed, so far as it encouraged transfers in view to equalise promotion, would, in my opinion, be mischievous. I see no object in making great efforts to equalize regimental promotion. It is, I think, rather a good thing that there should be some inequalities rather than that all should be on one dead level. It seems to me that we do sufficient by securing substantive promotion in rank after fixed periods, and that we may very reasonably allow variations in regimental rise, having always the power by transfers of correcting any very glaring cases of extreme ill or good fortune.

61. Moreover, I am not aware that there is any real ground for supposing that promotion will be more equal in a cadre of 14 or 21 officers than in a cadre of seven officers. Certainly in old cadres of the Native army, which in 1857 had 26 officers in the infantry and 24 in the cavalry, and which had never for many years been less than equal to the complement of three of the present cadres added together, there were more glaring inequalities than any that now exist. For instance, I could name regimental lieutenant-colonels of 20 years' service and officers who were still captains after 40 years in the army, and I could name men who were captains in less than five years, while others remained subalterns for 24 years.

I see no good reason for altering the organization of regiments in any of the modes just treated of.

System of Staff Corps Promotion.

62. I believe the present system of promotion after fixed periods is quite suited to the Indian army. It saves all the hardships arising from the very often very slow promotion of what must to a great extent be a seniority service, and it also saves the constant agitation that used to prevail formerly, and often with success, for augmentations either to the whole army or in the higher grades. Any augmentation gave promotion, and agitations for it were often successful, and were ever at work, as anyone may see who refers to old Indian perodicals and newspapers.

63. The present system of promotion I consider is well suited for a large body of officers who have to fill a great variety of employments, and who should rise in army rank irrespective of that employment.

64. It cannot be alleged that the rates of promotion are too rapid, for unless an officer has the good fortune to become a colonel by brevet out of the regular course, he can hardly expect to become a major-general until he is 60 years of age; and to become a captain at 30, a major at 38, and a lieutenant-colonel at 44, which is provided for an officer who enters at the now rather early age of 18, is not ensuring too rapid a rate of promotion, especially considering that the service is Indian service.

65. At present, no doubt, the proportion of old to young officers, and consequently of those of high rank to those of lower rank, is excessive. This result naturally follows the measures of reduction, and consequent non-appointment of young officers at the bottom, with a system of

pension very adverse to early retirement. As these results disappear, and especially if what I consider an improved pension system is adopted, which would cause a flow of retirements, I think there is no reason to apprehend any undue proportion of officers of the higher ranks, always bearing in mind the purpose for which we maintain the Staff Corps, namely, to supply a body of officers for regimental duty with Native troops of a higher kind than those of a mere subaltern or even of the command of troops and companies, and for staff and miscellaneous employment of various kinds, but mainly of an important description, and which in the majority of cases is quite suitable for officers of rank and standing.

66. From the remarks I have made it will be gathered that I would leave the present system untouched in the main. In fact, I suggest no material alteration (except as to pensions) unless the supply of young officers through British regiments is inadequate, and then I would resort to direct appointments by competition at home for all vacancies in excess of such as might be applied for by officers who had obtained sub-lieutenancies in the British army—that is, I would allow all sub-lieutenants in the British army to the required number to volunteer for the Indian Staff Corps. They should then go through the ordinary professional training at home and be attached to a British regiment in India for a year, at the end of which time, if their conduct and attainments were satisfactory, they should join a Native corps, and become members of the Staff Corps. It seems possible that most vacancies might be filled in this way, but whenever there was was not a sufficient supply there might be a competition solely for the Staff Corps, and the successful candidates should go exactly through the same training as I have just described.

67. I do not think this way of obtaining officers is as good as the present system of admitting ready trained officers acquainted with Indian service, and I only advocate its adoption if the present system fails.

68. As respects pension I would advise a great alteration. Officers who were in the Staff Corps before 1866 are entitled to colonels' allowances after serving 12 years as lieutenant-colonels. For many of these, with such a prospect before them, even liberal inducements to retire earlier may be unsuccessful. Still some may go early if a fair pension, sufficient to support them in comfort, is given, while the officers who have entered since 1866 have so very remote and uncertain a prospect of colonels' allowances, that a good pension would no doubt induce many whose prospects were not brilliant to retire before they became at all inefficient. My own idea is that every inducement should be given to men of 50 years of age or thereabouts to retire. At that period of life an officer, unless in a very responsible position or with good prospects, very generally falls off in zeal and efficiency, and I agree with what appears to be the view of Lord Napier of Magdala, that it is rarely desirable for a man of 50 or upwards to be in command of a regiment, still less in an inferior position. I would give considerable inducement to an officer of that age to go, and I would make his prospect of anything better in the way of retirement so remote and uncertain that he would have little inducement to remain on for it. Men in the first positions or with very good prospects—the class we do not want to lose even at 50—would not be induced to go even by a liberal pension, but I think others would.

69. Therefore, retaining as a permanent arrangement the grant of colonels' allowances to one officer in 28 of the whole establishment, which would probably only give this advantage after a very prolonged and always uncertain period, I would give the 600*l.* a year pension now claimable after 35 years' service after 30 years, and I would altogether abolish prospectively the intermediate pension of 750*l.* now claimable after 38 years. There would then be no additional inducement between 30 years and probably 40 or 45 years, and I anticipate that the result of this would be to induce many to retire at 30 years' sevice. With a pension of 600*l.* at 30 years, the present pension of 365*l.* at 28 years would be inoperative, and I think this pension might advantageously be given at 26 years or on attaining lieutenant-colonel's rank. The major's pension of 292*l.* after 24 years' service might then, I think, be abolished, and only that of 191*l.* after 20 years' service remain.

70. Without some such modification of the pension rules, we shall continue to have too many old officers—an evil which, when it leaves old officers in appointments only suited for younger men is much to be deplored.

71. It does not occur to me to add any more on the subject of the appointment, duties, position, and retirement of British officers of the Native army; but I may say that though I should hail with joy any proposals for a more thoroughly perfect system than the present, and though I have read innumerable proposals, I believe, to use the Commander-in-Chief's own words, that "the present works better than any which has been proposed." There have been schemes for having a full complement of British officers to Native corps as in the West India regiments; for having some regiments with the foregoing complement and some with a smaller number, seven, six, or even three officers, and there have been proposals for reverting to the old system of officering; but none seem to me to meet the old difficulties met in supplying officers for the various necessary employments without injuring the efficiency of regiments, and none provide satisfactorily for only advancing to higher regimental posts those who are suited for them. It seems to me impossible to have the old complement of officers, still less to give an even larger establishment.

72. If we did this, and left the Punjab Frontier Force, Hyderabad Contingent, &c., on the present establishment, with their officers taken according to the old vicious system from the corps under the three Commanders-in-Chief, we should require for these 30 regiments of cavalry and 119 of infantry about 1,200 more officers than we need at present, and after all we should probably, as under the old system, frequently have less officers present for troop or company duty than the number of troops or companies. It seems to me out of the question to revert to any such system, or to dream of having an organization in the present day which would leave officers for 15 or 20 years subalterns of Native regiments on wretchedly small pay, and with little employment for the majority at all calculated to bring out their energies or talents.

73. In concluding this chapter, I would observe that it is sometimes alleged that officers and men are not so closely bound together as they formerly were. If this was the case, I should ascribe

it rather to general changes in India that are not confined to the army, than to any alteration of organization; but I disbelieve the statement. The publications and newspapers of 50, 40, 30, and 20 years ago said exactly the same thing of the officers in those days, and no doubt there were many who then took little interest in their corps, but I believe nowadays in Bengal the majority would be the other way. Of course if officers are constantly changed from one corps to another, they cannot form any binding ties with their men; but such transfers are not frequent now in Bengal, and need not be frequent anywhere. I think the complaint is not well founded, and, if it were so, I can see no grounds for ascribing it to any circumstances necessarily connected with organization.

CHAPTER II.

Native Portion of the Army of Bengal.

In this chapter I propose to deal solely with questions affecting the Native officers and soldiers, and I shall first take those which his Excellency the Commander-in-Chief has treated of, in consecutive order.

Composition and Organization of Regiments.

2. As respects the division of regiments into troops and squadrons of companies and wings, I have given my opinion fully in the first chapter of this note, and I advocate no change in this respect, unless, which I much deprecate, it should be decided to deprive Native officers of the command of troops and companies. In that case the squadron organization would still continue to be suitable; but for infantry I would then have large companies, four to a battalion, as proposed in paragraph 58 of my first chapter. That organization would answer various purposes, and is described in more detail in my Note of 18th July 1873, which is attached as Appendix E. As I said before, however, after very full consideration, I do not recommend that organization if Native regiments are to have the existing complement of British officers; and I hold an adverse opinion on the proposal to have two, three, or four battalions linked together. Against this measure I have advanced reasons in the previous chapter on Eurpoean officers, and as respects Natives I believe it would be unpopular in the extreme if it was more than a linking in name. I believe the liability to transfer from one battalion to another has not proved popular, or had a good effect on recruiting in the British army, and I believe it might have even a far more prejudicial effect in the Native army, where a soldier enlists often to be among friends or relations, and to whom a transfer, except for substantial advantages, is in the highest degree unpleasant.

3. Much has been written about having class regiments—and class regiments only. Nothing that I have read has convinced me that the decision of Government as to the composition of regiments, arrived at in 1862, was unsound. Even if very strong reasons could be adduced in favour of a large alteration, I think that it would be impossible to carry it out without creating hardship and discontent. Changes in an army are always hazardous, and especially so in an army constituted like that of India, and therefore should not be lightly undertaken, and it would be difficult within any reasonable time to effect so great an alteration in the army. There may be greater *esprit de corps*, as allowed by the Commander-in-Chief, in a class regiment than in one composed of various nationalities, and every one can understand that where the class regiment is composed of men of some warlike and yet docile race, the officers have less trouble with their men, and probably take much pride in them. But there are dangers on which it is needless to dilate in having corps composed of one class of Natives, and this danger is greatly intensified if we have many such corps, and would be still more intensified if we localise corps.

4. Moreover it is in my opinion quite undesirable to have a uniform system for the composition of Native corps. We must have a uniform system of drill, of discipline, of equipment, and as far as possible of pay; but in an army like our Native army we should avoid any approach to a uniformity of composition.

5. The notes that accompany these papers will show how carefully the subject of composition of corps was gone into before a decision was arrived at, and much valuable information is to be found in Appendix M. of the Adjutant-General's letter. The division of the army laid down by Government in 1862 will be found in that appendix, and a reference to the Government letter will show that the army, exclusive of the regiments of the Punjab Frontier Force, was first classed in three divisions: 4 corps of Goorkhas, 16 raised Trans-Jumna, and 28 raised Cis-Jumna. One regiment, a Trans-Jumna corps (Rattray's Sikhs), was subsequently transferred from the Bengal police to the army and brought up Class II. to 17 regiments. Though there were these broad divisions, some of the corps recruited Cis-Jumna had and still have men enlisted in them from Trans-Jumna districts.

6. These 48 regiments were again divided for recruiting purposes, as follows:—

I. Six special regiments, four of Goorkhas and two of Muzbee Sikhs, to continue their enlistment entirely from one class.

II. Nine old Hindustani regiments, or remains of such, and two Sikh regiments, to continue to recruit as heretofore from the classes of which they are now composed.

III. The Punjab regiments raised in 1857–58 and the Assam and Sylhet corps, 15 in number, styled "general mixture" regiments. Minute orders as to the proportion of each class were not laid down; but the enlistments were to be from the classes heretofore composing the corps, and in the 12 of them which recruited from the Punjab neither of the two great

divisions of Sikhs or Mahomedans were to exceed one half the strength of the regiment, and not more than one eighth of the latter were to be from beyond the frontier—while, if possible, one eighth of the regiment should be Dogras. The Assam and Sylhet corps were to recruit as much as possible from the districts near which they are stationed, and were not to have more than a fourth of their strength Hindustanis.

IV. Nine of the corps which had been raised in 1858 were to be on the class company system, each company or two companies being of a different class.

V. Seven regiments that were weak were also formed into class company corps.

7. Under the above system of recruiting and organization the Government was of opinion "that sufficient provision is made against too great a preponderance of any one race or class, as "as well as against too great a uniformity in the composition of the army, while no great change "injurious to men then serving was involved." The expectation of the Government has, I think, been fulfilled; but occasional changes of composition in particular regiments have from time to time been recommended and allowed, and no doubt such changes will continue to be made as may seem expedient.

8. In the cavalry no great or special changes were made. Two corps were specially class corps —the Mooltanee Horse and the Jat Horse—others had class troops, and others were on the general mixture system. In the cavalry, as in the infantry, some small changes of composition have been carried out from time to time.

9. In the Frontier Force no change was made, and that force consists of four Sikh regiments, six Punjab regiments, the Guide Corps (which is on the class company system), and a Goorkha regiment. The cavalry are mixed.

10. The result is that the whole Bengal army and Frontier Force consisted by the last returns of the following proportion of each of the great divisions, namely, 22,256 natives of Hindustan, 19,719 natives of the Punjab, 4,797 men from Trans-Indus, and 9,166 Goorkhas and hillmen, besides 260 Christians. The Hindustanis again were divided into 6,432 Mahomedans, 8,054 Mahomedans and Rajpoots, 1,907 Jats, and 5,863 of other (mainly low) castes; the Punjabis into 5,955 Mahomedans, 874 Hindus, 11,701 Sikhs, 1,169 Muzbee Sikhs, and 20 men of other castes; the Trans-Indus men into 2,311 Affghans and 2,486 of various tribes, and the hillmen into 5,188 Goorkhas, 3,126 Dogras, and 852 hillmen of other classes.

This I apprehend to be as safe a division of our strength as is practicable, and no change in it seems to be called for. I may observe that when officers advocate their corps being formed of one class, they almost invariably desire that this one class should be Sikhs or Goorkhas or Pathans, who are supposed to be the best soldiers; but we do not want an army only composed of these men.

Localisation of Regiments.

11. I agree with the Commander-in-Chief that it would not be convenient to localise any great portion of the army. If we did so, we should have to localise some corps in districts where no recruits can be found, and these regiments would very much dislike being localised far away from their homes. To localise them in their own districts would render them especially dangerous in the event of local excitement, and on the whole it is better for the corps and better for the State to move the bulk of the army periodically. I may add that it would be exceedingly impolitic to allow any corps to be for a prolonged period at or near any of the great cities. For instance, it is said that Sikhs who are any length of time at Benares fall under Brahminical influence, and at Delhi or Dinapore (Patna) seditious influences of various kinds might at times be brought to bear on Native soldiers who became well acquainted with the townspeople.

12. There are exceptions to the above principle, and it is convenient and in no respect dangerous to have the Goorkha regiments altogether localised, except when wanted elsewhere, and to have the Assam and Frontier Force regiments localised within certain territories; but to go materially beyond this in the way of localisation seems inexpedient.

Efficiency of Native Officers, and their Duties and Emoluments.

13. I can add little to what is said on this subject by the Commander-in-Chief in the 83rd and following paragraphs of his Excellency's remarks. I believe that a very large portion of the officers of the Native army are efficient, and that the measures now in progress are calculated to make them more so. From my experience of Native officers under both the old and new systems, I am led to look as quite untenable upon the idea that we cannot have Native officers thoroughly efficient for the command of troops or companies in peace or war.

14. Besides careful selection of non-commissioned officers for the commissioned grades, and the admission, occasionally direct, of Native gentlemen of the warlike classes, as is now the practice in Bengal, and a thorough and practical system of instruction, we should make the position of Native officers an object of just ambition and pride. This part of the subject will, however, be dealt with later on. I only desire to record my belief that the standard of Native officers has greatly improved, and that although there were some most admirable Native officers in the corps of the old army, there is now a much larger proportion of such men.

15. I do not conceive it possible to have a satisfactory Native army without thoroughly good Native officers, quite apart from the number of British officers. I believe that it is undoubtedly the case that, where troops stood firm in the mutiny in Bengal, even the very best European officers who were concerned would readily admit that they would have been powerless if the Native officers had not aided them. Nor do I believe that we could have raised the numerous regiments that were formed in 1857 without bringing in Natives as officers under a system something like that now existing. The lesson I deduce is that we should have thoroughly efficient and, if possible, thoroughly loyal and contented Native officers; and I think we do our best to secure this by a

system under which we give our Native officers responsible and honourable positions, with a suitable and adequate training.

16. While I admit that a good Native officer, even if somewhat advanced in age, may be of the greatest value from his own good spirit and from the good influence he exercises in the regiment, I still think measures are advisable for keeping down the retention on the active list of Native officers who are past active work; and therefore, instead of not allowing a Native officer to retire without medical examination until after 40 years' service, and instead of keeping him on, as is now often the case, until he is 65 years old or upwards, I would remove every Native officer to the invalid establishment on his attaining the age of 55, or on completion of 35 years' service, allowing him in all such cases the full pension of his grade as claimable after 40 years' service and after three years in the grade. This rule would, I believe, work perfectly, be of much service, and cost little. In any very special case the Commander-in-Chief might be empowered to allow a Native officer to be retained on the active list for two or three additional years.

17. I think, further, that to improve the position of Native officers under the present system, we should increase their pay and pension; but I only recommend this if we retain them as the heads of troops and companies. If we do not look to them to command troops and companies, but merely treat the posts of Native commissioned officers as to be filled by the senior non-commissioned officers, and as a reward for past service, they are quite sufficiently paid at present.

18. Formerly, the subadar received Rs. 67 and the jemadar Rs. 24–8 per mensem in quarters. In 1864 this was raised to Rs. 30 for half the Jemadars and Rs. 35 for the other half, while half the subadars were to receive Rs. 67, two Rs. 80, and two Rs. 100 a month. One of the subadars, as formerly, received Rs. 25 a month additional as subadar-major. This increase to the pay of Native officers cost about 32,000*l.* per annum. The Commander-in-Chief proposes a considerable addition to their pay; but though I have no doubt the army would benefit from so large an increase to the pay of Native officers, the cost of the measure (about Rs. 7,37,000 per annum), when added to the cost of other equally necessary, or perhaps more necessary, measures, seems to render such an increase impossible, considering that any further outlay in the Native army must necessarily be limited. Nor do I think such a very large increase is actually required, and I should therefore be content to leave the jemadars (who are subalterns) untouched, but would abolish the class of subadars drawing Rs. 67 per month, and have four in each regiment on Rs. 80 and four on Rs. 100. The subadar-major also, I think, should have Rs. 50 instead of Rs. 25. He is the first Native soldier in the regiment and should be made much of. I would also in Bengal, as is now the case in the other Presidencies, employ one of the jemadars as Native adjutant on Rs. 17–8 a month. This has been separately recommended by the Commander-in-Chief.

Proposal of His Excellency the Commander-in-Chief.

1 Subadar-Major from	-	-	Rs. 125 to Rs. 200
1 Subadar	-	-	„ 100 to „ 150
2 Subadars	-	-	„ 80 to „ 100
4 „	-	-	„ 67 to „ 100
4 Jemadars	-	-	„ 35 to „ 60
4 „	-	-	„ 30 to „ 40

19. The cost of the above proposals for Native officers would amount to about Rs. 1,12,454 per annum, and I believe they would be sufficient. No alteration seems necessary in the pay of Native officers of cavalry, their remuneration being liberal, and the position being an object of ambition to every efficient man.

20. I agree with the Commander-in-Chief as to the inadequate rate of pension now given. To a small extent this could be remedied by my proposal in paragraph 16; but I intend to enter into the whole subject of the pension system of the three Native armies in a separate chapter. I also think that special positions might be assigned at durbars and on ceremonial occasions to Native officers who have received the "Order of British India" or "Order of Merit;" but I doubt whether it is necessary, considering the original social position of most Native officers, to give them first-class seats in railways as proposed by his Excellency.

21. Although nothing in the way of additional pay seems required for Native officers of cavalry, they would, of course, share in any pensionary advantages that may be granted; and officers who are members of the Order of British India would take, as at present, their allowances of Rs. 30 and Rs. 60 a month, respectively into retirement, and those who were subadar-majors an invalid pay equivalent to the allowance of that office.

General Advantages to be granted to the Native Army.

22. I have now to advert to the Adjutant-General's letters of the 16th November 1874 and 30th June 1875, making certain proposals with respect to Native soldiers, the decision on which was held over until the whole question of the Native army could be dealt with. These proposals as to effective soldiers are as follows:—

I. A free kit to recruits.
II. That an allowance of Rs. 4 per man be made for half-mounting annually, instead of deductions being taken monthly from the soldier's pay for this purpose.
III. That good-conduct pay be allowed at earlier periods than at present, and that a third rupee of good-conduct pay be granted.

These conditions apparently apply to the infantry and sappers and miners only.

23. As respects the grant of a free kit to the recruit, I have long held and urged the necessity of some such measure. It is stated in the Adjutant-General's letter that the average cost of a complete kit now is Rs. 36, which is equal to more than five months' pay of the sepoy. This is a much larger sum than the kit used to cost formerly, and the increase, I suspect, is quite as much due to superiority in the articles now supplied as to a rise in prices; but however this may be, it is impossible to lower the standard of articles, and it is obvious that it must operate as a great discouragement to recruiting if a young man knows that he will only receive perhaps Rs. 4 per mensem for 12 months after he enlists. I therefore think it essential to aid the recruit in providing his kit.

24. I do not think it is necessary, however, to give him his whole kit free, or to put him at once on as good a footing as the trained sepoy; nor do I think it would be at all expedient to admit the principle that Government granted a free kit. To do this latter would be to take away from commanding officers all incentive to keep down the cost of a kit, and rather to encourage them to raise its standard. I believe it would be better to give a grant in aid of the cost of the kit, and, for this purpose, a sum of Rs. 18 or Rs. 20 would suffice. Correcting Mr. Kellner's estimate of the cost of the Commander-in-Chief's proposal by this modification, the estimated annual outlay would be Rs. 1,78,920, if Rs. 18 were given, or Rs. 1,98,800, if Rs. 20 were allowed. This would be the cost for the armies of the three Presidencies and Punjab Frontier Force, the proposal being equally applicable to all.

Accountant General's memorandum, No. 203 E. of 25th June 1875.

This measure—to whatever extent it is carried—I look upon as one of the most important towards increasing the popularity of the service, and rendering recruiting, and perhaps a selection of recruits, more easy than it is at present.

25. The grant of money for half-mounting, or in aid of half-mounting, seems to me also most desirable. As in the case of the grant to recruits, the sum should not be paid avowedly to cover the whole cost of half-mounting, but as a grant in aid. The tendency with half-mounting, as with the recruit's kit, is to raise the standard and consequently the price. This is particularly noticeable in the case of great coats, which, though they may perhaps last rather longer than formerly and look much better, do entail a higher cost on the soldier. I think, therefore, that it will be wise for Government to step forward in aid, and grant this annual sum of Rs. 4 to the non-commissioned officers, drummers, and rank and file of the Native infantry and sappers and miners. The cost of this measure for all the armies would be Rs. 3,80,800 per annum. It is, of course, a boon which, if given at all, would be given to all the armies.

26. With respect to good conduct pay, the rule up to 1864 was to give sepoys Rs. 1 extra after 16 years' service, and Rs. 2 after 20 years; and strange as it may seem, there were a large number of sepoys—that is, men who had not attained to the lowest grade of non-commissioned officer—who drew this allowance. In 1864, the periods required to give a claim to this allowance were lowered to six and ten years respectively, at a cost to the state of 57,000*l.* annually. His Excellency the Commander-in-Chief now proposes to reduce the first period to three and the second to nine years, and to add a third rate of good-conduct pay of Rs. 3 after 15 years service.

27. It is difficult, of course, to do more than make an approximate estimate of the cost of this measure; for the number of men for each period of service no doubt varies from time to time, and also the number of men who by reason of misconduct are ineligible for the boon, though the latter number in the Native army always bears a very small proportion to the number of well-conducted men. By the best estimate Mr. Kellner can make, however, the cost for the three Presidencies would amount to Rs. 2,03,808 per annum.

28. Now this proposal, though no doubt desirable in itself, appears to me to stand on a lower ground than the other proposals. Thus to increase the pay and to improve the pensions of Native officers is avowedly to raise the status of Native officers in view to requiring a high standard of efficiency from them; to give recruits a sum in aid of the cost of their first kit would no doubt be a great aid in recruiting and in keeping the young soldier out of debt; while to aid the older soldier in paying for his half-mounting would be a wise concession to enable him more readily to meet demands upon him for personal equipment, which have much increased of late years, but there do not seem the same strong reasons in favour of increasing the good-conduct advantages. I do not think it will be contended that the men will be a bit better behaved after such a grant than before it, and the boon of earlier good-conduct pay will hardly exercise a very perceptible influence on recruiting, though it may do so to a certain extent. Apart from this latter, the proposed boon can only be looked upon as a measure of a general kind to improve the position of the Native soldier. As such, it is a measure which, if money is forthcoming, might be adopted, but I should put it last in the list of proposals already detailed, and below some to be described hereafter. It is a matter of contention whether the sepoy is really not well off now—and certainly, as will be shown hereafter, the service cannot be called unpopular—but in my own mind I feel a conviction that Rs. 7 a month now is not what it was 50 or even 20 years ago, and if we can afford 20,000*l.* to improve the good-conduct pay of the sepoy I shall be glad, but there is no urgent necessity to do so.

29. Certainly such a measure was more necessary a few years ago than it is now, if we refer to the amount given in compensation for dearness of provisions. That compensation includes all the staple articles of the sepoy's food, and though he has other items of expense for which no compensation is given, some at least of these are met by the increased hutting money recently allowed, and by the proposal to give a sum in aid of half-mounting expenses. It appears from a return prepared by the Accountant General, Military Department, the compensation allowed for the Bengal Native army which was—

Rs. 7,60,236 in 1868–69,
„ 13,95,101 in 1869–70,
„ 7,37,306 in 1870–71,

has been under three lakhs of rupees in each of the years 1871–72, 1872–73, and 1873–74, while in 1874–75 it fell to Rs. 1,83,566. If there has been such a fall of prices in cantonments, which are expensive places, the effect must have been at least equally felt at the sepoys' homes, and have rendered it more easy for them to support the families which in so many cases are wholly or partly dependent upon them.

30. His Excellency has not on this occasion or in the letter of November last made any proposals with respect to the Native cavalry, unless, indeed, the proposal for good-conduct pay at earlier dates is intended to apply to the cavalry. This, however, is not clear, and in point of fact the

Bengal and Punjab cavalry do already receive three rates of good-conduct pay, viz., one rupee after six years' service, two rupees after ten years, and three rupees after fifteen years' service. If the good-conduct pay of the infantry is altered, it may be desirable to alter the first increase in the cavalry from six to three years, and the second from ten to nine years. The highest rate is already given after the period now proposed for the infantry by the Commander-in-Chief. The only appreciable additional cost would be therefore in the lowest grade, but there is no data to calculate what that would amount to. It could hardly exceed Rs. 40,000 per annum. As I said, however, with respect to the infantry, this extra outlay does not seem to me essential.

31. The grant of this good-conduct pay would involve no change in the Bombay cavalry. By what has always struck me as an objectional arrangement, the sowar, on enlistment in that Presidency at once receives the full rate of Rs. 30 a month, which is only gained by the Bengal sowar after 15 years' service and good conduct. The Madras cavalry, not being on the Silladar system, receive good-conduct pay under the same rules as the infantry, and would of course receive any advantage in this item that might be accorded to the infantry. This branch of the service is, however, so weak in numbers that the alteration would only involve a very small extra charge.

32. Though I see no strong grounds for interfering with the present good-conduct regulations of the cavalry, there are two matters in which I conceive that arm requires to be benefited. I allude to compensation for dearness of provisions, and hutting money.

33. At present in the Bengal and Punjab cavalry the Native soldier receives no compensation for dearness of provisions. This is heavily felt by the sowar when quartered with Native infantry who are in receipt of compensation, and, considering his other heavy expenses, may at a dear place leave him much worse off than the infantry soldier. At Barrackpore the rule was to my knowledge felt as a grievance by the squadron there stationed in 1873 and 1874. The expediency of the grant was urged by the Commander-in-Chief in the Adjutant General's letter, No. 1688, of the 28th June 1874, and I think it most necessary that this concession should be made. All grades of the Madras cavalry now receive it, and also the troopers of the Body-Guard and Bombay cavalry, but apparently not the Sind Horse. In Mr. Kellner's calculations he has excluded the Guide cavalry—why, I know not. The total cost, however, including that corps, is under Rs. 2,00,000 per annum, and it would add much to the comfort and freedom from debt of a very important branch of the service, and remove a cause of discontent which is not altogether unnatural.

34. I am further strongly of opinion that hutting money should be given to the cavalry as it is to the infantry. It is given to the Madras cavalry, and the Sind Horse I think have their lines constructed by Government. Under the present system there is an equality between the branches of the service, and the cavalry would suffer heavy pecuniary loss if they were not sometimes left for long periods at the same places, and if it were not that almost invariably on any special application the Government grants hutting money, or some sum in aid. These cases give rise to correspondence which it would be well to avoid, and I would place the Bengal and Bombay cavalry and cavalry of the Frontier Force on the same footing as respects hutting money as the infantry. I do not think it necessary, however, to take over existing lines. All that I would propose is that on the next occasion of a move, each regiment should receive full or half hutting money under the rules applicable to the infantry. The annual cost of this measure is estimated at Rs. 42,000, but this is in excess of the real extra cost, for on a good case being made out hutting money is now very generally allowed.

35. I have now gone through the measures proposed to improve the condition of those now serving in the Native army; and according to my views I will place them in order of importance, and give the estimated cost of each measure:—

	Rs.
I. Grant in aid of kit to recruits of infantry and sappers - -	- 1,99,000
II. Grant of compensation for dearness of provisions to Native cavalry -	- 2,00,000
III. Hutting money to Native cavalry - - - - -	- 42,000
IV. Increased pay to Native officers of infantry - - - -	- 1,12,500
V. Grant in aid of half-mounting to Native infantry - - -	- 3,81,000
VI. Good-conduct pay at new rates for cavalry and infantry, say - -	- 2,50,000
Total	- 11,84,500

or say 120,000*l.*, or without the good-conduct pay 95,000*l.*

Proposals for all Native Regiments to have Colours and Bands, and for the issue of Blankets for the Sick.

36. There are three other proposals made by Lord Napier of Magdala in his Adjutant General's letter of the 16th November 1874, which hardly in a direct way would improve the position of the men if adopted, but which rather fall into this chapter than into any other which I propose to write. They are to sanction colours for all corps, to allow the establishment of bands in each regiment, and that an allowance of blankets be given for the sick in hospital.

37. As respects colours, I would allow the issue of them to such regiments as the Commander-in-Chief desires should have them. It appears that in 1863 the Commander-in-Chief recommended to Government that regiments which were in possession of colours should retain them, but said that it was unnecessary to provide newly-raised regiments with colours if they had never possessed them. The Government concurred with his Excellency. The reason is not stated, but my impression is that it was thought unnecessary to incumber the regiments with colours, the corps being considered then of a quasi-irregular description, and not to require colours any more than the rifle brigade or light cavalry. I should have thought, under the present circumstances of civilised war, when corps under fire are so often broken up, colours would be a great

incumbrance, and I presume his Excellency would not issue them to Goorkha or other special regiments, but this might be left to his Excellency. All corps have colour havildars, so no expense would be entailed.

38. As to bands, the case is different. This establishment not only entails cost upon the Government, but also upon officers, and deprives a regiment of 16 trained sepoys for duty. As there are rarely more than 550 trained sepoys in a regiment, this is a sensible withdrawal. There have been various proposals to establish bands, and, as the correspondence accompanying shows, the Government have objected on the above grounds, and because, even if the officers at present in a regiment are willing to incur the expense of a band, it throws upon their successors a charge which they may not be willing to meet. The Government allows Rs. 100 a month to an authorised band, and the remaining cost is made up by the officers at a varying charge, but which in some cases reaches the large proportion of three per cent. on their pay and allowances.

39. The Commander-in-Chief at one time proposed to have a small band without any cost to Government for regiments that had not regular bands, but this was not agreed to—see paragraph 6 of Colonel Burne's letter to the Adjutant-General, No 352 of the 10th November 1873.

40. I freely admit that a band is a great advantage to a regiment, and certainly I should like to have one if I was with a corps. I believe also that to a certain extent the Native soldiers like a band, and that it gives life to a corps when marching. I would therefore waive the objections previously raised, and allow bands to be established and the allowance of Rs. 100 a month to be given in any case where a commanding officer applied for permission, and satisfied the Commander-in-Chief that the officers of the regiment were anxious to have a band and willing to meet the expense in excess of the Government allowance.

41. Eighty out of the one hundred and thirty-one regiments of Native infantry now draw band allowance, so the cost if all regiments drew it would amount to Rs. 5,100 per mensem, or Rs. 61,200 per annum; but it is not at all likely that every regiment would establish a band, as a considerable minority of the old regiments with a large complement of European officers had never established a band up to the Mutiny.

42. But I could only advocate this extra charge if its grant in no way interfered with the outlay recommended for the Native army as estimated in paragraph 35 of this note, for the establishment of bands in the regiments which do not now possess these institutions is of small importance when compared with the measures there proposed.

43. Lord Napier of Magdala further proposes that the sick in Native hospitals should not be left in all the varieties of Indian climate to depend entirely on their own resources as to bedding, and urges that an allowance of blankets equal to five per cent. of strength be allowed to meet special cases of sickness. Somewhat similar proposals have been made previously—one made by the Commander-in-Chief in 1871 going to the extent of providing a mattress and blanket for each man in hospital.

44. A small proportion of hospital bedding, it may be observed, is now supplied in Madras, and Bombay in 1870 asked for the concession to be extended to that Presidency, but no special reasons were assigned and the bedding was not allowed.

45. The proposal is a small one, and apparently one that on the surface, and judging by European notions, is most reasonable. It, however, strikes at the root of a rather important principle, which is to give the sepoy pay sufficient to cover many incidental expenses, and to make him as independent of all agency of departments as possible. Under this view the sepoy takes his own bedding to hospitals, and formerly, certainly, it used to be quite sufficient. To provide any sort of bedding apart from cost entails arrangements for its care, transport on the march, renewal, &c., and from conversations I have had with officers I doubt very much whether large classes of men would like to use any sort of bedding common to all, and that therefore in some hospitals it would remain unused, or be forced on the men against their wish. I further am led to believe that in many regiments the arrangements made ensure every patient in hospital having a sufficient quantity of good bedding, and it seems to me that this might be the case in all corps.

46. With respect to the Commander-in-Chief's remark that the sick sepoy should not be left in all the varieties of Indian climate to depend entirely on his own resources as to bedding, I would observe that this only applies to the fixed cantonments and to ordinary service in the plains of India, for it is usual when troops proceed on any special service in cold or damp regions to issue to them extra articles in the shape of blankets, flannels, socks, and the like.

47. The Commander-in-Chief probably, however, has satisfied himself that commanding officers are of opinion these blankets are really wanted and that they cannot make adequate arrangements for the bedding of men in hospital, and that the men will use them when issued, and therefore, perhaps, they might be allowed in Bengal and Bombay to the extent proposed, to be under the care of the surgeon, and to be issued when a sick sepoy has not sufficient bedding of his own. The first cost would probably be Rs. 10,000, and a similar sum would have to be expended every second or third year.

General Condition of the Bengal Native Army.

48. Before concluding this Chapter on the Native portion of the Bengal army, I desire to make a few remarks on its general condition, and this seems the more necessary as for various reasons there are writers in the newspapers who, usually without giving any facts whatever, endeavour to decry the efficiency of that army in a way that is calculated to produce mischievous results.

49. In reply to these strictures, and in defence of the present army, I would refer to paragraph 49 of the Adjutant-General's letter in which the distinguished officer who has now been in command of the Bengal army for five and a half years, and who served with the old army in many actions, asserts that the present system has succeeded—"firstly, on the ground of the greater "efficiency which may be claimed for the regiments on the present over those under the old

" organization ; secondly, from the achievements of these regiments in the field ; and thirdly, " from their obedience." In the succeeding paragraphs his Excellency shows certain disadvantages under which regiments unavoidably laboured for some time, and gives statements in proof of his opinion.

50. This opinion might, I should think, be accepted as conclusive, when we recollect that his Excellency has seen the whole of the Bengal army, one single regiment excepted, and that he has been for many weeks together in camps of exercise with a large number of the regiments who were then actively employed ; that he had Bengal troops with him at Magdala, and also at Pekin, and although in the latter service the present system was only imperfectly developed in regiments, the material was the same ; and that he attaches abstracts of the reports on regiments by inspecting officers for the past three years in support of his view. These reports, it may be observed, emanate from the various general officers selected for commands, and belong to both the British and Indian services.

51. We may, however, go further back and refer to Sir W. Mansfield, who between 1865 and 1870 had also seen the majority of the Bengal regiments, and who during former service in India had seen something of the old army in quarters, in two great campaigns, and in some smaller services. In his parting general order, Sir W. Mansfield expressed himself with regard to the Native Army as follows:—

" In quarters the conduct of the troops, British and Native, has left but little to desire, and has rendered the duty of command-in-chief and supervision comparatively easy.

" The confidential reports of the inspecting officers on the two descriptions of troops, which are of a searching kind and affect all ranks in every regiment, show that the respective systems are good and sufficient. His Excellency's inspections of the several corps, the study of court-martial and conduct returns, enable him personally to confirm the testimony borne by those reports.

" The system finally introduced into the Native forces when the Bengal army was reorganized under the orders of Lord Strathnairn, has been consolidated. In his Excellency's opinion, this system, now no longer new, has stood the test of the experience of several years very fairly, it being safe to leave the correctness of this view to be measured by the efficiency displayed in campaigns, and the results of discipline, good order and zeal, as declared in the reports referred to."

52. To go still further back, we may refer to the General Order issued by Sir Hugh Rose on relinquishing command of the army in 1865. In it he bears testimony to the Native army being " efficient, obedient, and well-disposed," and an army which, though young, " has already done good service in the field " ; and he states that in the remodelling and reorganization after the events of 1857, the Native Army had to encounter great difficulties, but that " the unwearied zeal and ability of the officers and the good feeling of the men prevailed over every obstacle."

53. Various other opinions from those two heads of the army to the same effect and written at different periods could be quoted ; but more need not be said further than to point out that a Commander-in-Chief in India now-a-days, besides having frequent opportunities of seeing the army and having many experienced staff officers about him, does in the course of his command meet and converse with probably every officer of any standing in the whole army.

54. The efficient services of the young Bengal Army in China and Abyssinia have already been referred to. At Umbeyla, with a less perfect organization than at present, the greatest gallantry was displayed under most severe losses, and the greatest fidelity was shown under temptations of a trying nature. Since then, in Bhootan, Hazara, Lushai and more recent expeditions, the troops have shown a readiness and a cheerfulness on service which gave good augury of success if opposition had been more formidable.

55. At three camps of exercise, since 1871, the troops have displayed the best qualities in times of peace ; they have mastered the art of efficiently using rifled weapons without a single paid regimental instructor, British or Native ; they have learned new systems of drill, including that of the shelter trench, and have never, as far as I am aware, grumbled, as they might have done in former days, at the increased labour thrown on them.

56. Though causeless panics have two or three times been created—usually by timid persons of our own race—no sort of impression of disloyalty has now for many years been brought home to the Native Army, while in the famine of 1874, and in the fires and floods of the present year, the Native troops have shown themselves a ready and valuable instrument in aid of the benevolent exertions of the civil power. Nor must we forget how they have behaved in pestilence. When the terrible cholera outbreak of 1861 was in progress, which struck with death about five hundred Europeans of the garrison of Meean Meer, the soldiers of the 27th Punjab Infantry came forward to nurse their white comrades, and earned the praise of the highest authorities in India and of the Secretary of State in England. These may seem small matters, and it may seem that the men only did their duty, but still it was a duty out of the regular line of their profession, and being cheerfully and zealously performed, as acknowledged by the highest authorities, shows the readiness and good feeling of the men.

57. In paragraph 50 I have alluded to the very generally favourable terms of the reports of inspecting officers on Native regiments for the last three years. I have gone through the reports for several years prior to this period, and can safely say that though defects have been freely pointed out where they existed, their general tenor was very favourable. It is not possible to quote all the opinions for any period, but I will just give those recorded by one general officer who is much opposed to the present system, and does not conceal his opinion, though I am not aware that he has suggested the details of any other. He is out-spoken and a good judge, and, considering his views, his reports are of value.

58. I give every opinion recorded by him at inspections during the last three years without naming the regiments :—

Cavalry.

I.—The regiment appears to be in good order and in an efficient state. The Native officers are well instructed and understand their work.

I.—(*2nd inspection*).—An improvement has taken place in the regiment since last inspection. The interior economy is good, and the field exercises correctly performed. The "dismounted service" of the regiment is unusually good, some of the non-commissioned officers are rather indifferent.

II.—The * * is in an extremely efficient state. It made a splendid appearance on parade.

II.—(*2nd inspection*).—The regiment is in a most efficient state, and composed of an extremely fine body of men. Every one appears to have been extremely well instructed.

II.—(*3rd inspection*).—The * * is in an extremely efficient state. The European and Native officers thoroughly understand their work and are perfectly efficient in the performance of their respective duties. The men are well set up and drilled, and performed the movements extremely well.

III.—The regiment is well drilled and in a very efficient state. The British officers are all very good, and performed movements rapidly and correctly, and from their answers to the questions put them showed an intimate acquaintance with all the details of cavalry drill. The Native officers are well instructed and understand their duties. The recruits are a very good body of men, and likely to be an acquisition to the corps.

III.—(*2nd inspection*).—The corps is in a very efficient state. Both British and Native officers acquitted themselves well.

III.—(*3rd inspection.*)—The regiment is in good and efficient order. The British officers are in every respect efficient, and the Native officers and non-commissioned officers are on the whole active and intelligent.

IV.—Notwithstanding that there was only one British officer present at inspection, the regiment was very steady on parade, and gave proof that it was well drilled and that the Native officers are perfectly efficient. The recruits enlisted since last inspection are indifferent, and some are too old. Attention has been drawn to this point.

Infantry.

I.—The regiment is in a very efficient state in all respects. It is composed of an excellent body of men, who are well drilled and steady under arms. The manual, firing, and bayonet exercises were well done, as also the shelter-trench drill. The target practice was excellent. The European officers are tolerably well instructed, and the Native officers are well acquainted with their work.

I.—(*2nd inspection.*)—A very fine regiment, composed of a splendid body of men. The regiment drilled extremely well on parade, but when taken on rough ground officers and men were all abroad. Instructions have been issued on this point.

I.—(*3rd inspection.*)—This fine regiment, although it has suffered a good deal from sickness lately, is in excellent order in all respects, and reflects much credit on the commandant * * * and also on the second-in-command. All the Native officers commanded their companies well. The skirmishing of the corps was very good, and the target practice was admirable. There were no complaints of any kind, and the conduct of the regiment has been everything that could be wished. Everything in the regiment is well managed and cared for, and I could see nothing to find fault with.

II.—An exceedingly fine regiment, in a thoroughly efficient state. Its drill was well and steadily performed. The Native officers are unusually good, more especially on parade, where they commanded very well.

III.—The regiment is in a very efficient state. Every attention has been paid to the instruction and training of both officers and men, and a well regulated system of interior economy and discipline has been established in the corps. The European officers are competent and zealous in the performance of their duties, and the Native officers are qualified to command their companies. The field manœuvres were performed with correctness and celerity.

III.—(*2nd inspection.*)—The regiment is in a very efficient state; great pains have been taken in the musketry instruction, but the firing on parade was too hurried. All the European officers answered well all questions put to them. The Native officers understood their duties. The recruits are of a very good stamp.

IV.—The regiment is in an efficient state. Notwithstanding the unusal sickness, the men were extremely steady on parade, and marched past well. The outpost duty was also well done, and the bayonet, manual, and firing exercises were also well performed. The European officers are all well up in their work and fit for the positions they hold.

IV.—(*2nd inspection.*)—The regiment appeared to be not quite so steady on parade as it was at last year's inspection. The firing was bad both at the target and with blank ammunition, and there is room for great improvement. The European officers did fairly well on parade and answered the questions put to them well. The Native officers appear to know their duties.

V.—This is a fine regiment and moved well on parade. The Native officers and non-commissioned officers have been well instructed and understand what is required of them. The British officers all did well, and readily placed the corps in such positions as were pointed out. In musketry the officers answered indifferently. Instructions have been issued on this head.

V.—(*2nd inspection.*)—A very well drilled and well set up regiment, that performed the field movements with correctness and celerity. The European officers generally were not

sufficiently well acquainted with the sword exercise; otherwise, all replied well to the questions put to them and did well on parade. The Native officers commanded their companies on parade, and appeared to be well instructed.

VI.—A well-trained and well-disciplined regiment, in a perfectly efficient state.

VI.—(*2nd inspection.*) The ** Native infantry is in very good order. The target practice was excellent, showing that great attention had been paid to everything connected with musketry. All the officers exercised the regiment and did well. The Native officers are generally well acquainted with their duties, some are better than others. A few of the recruits appeared rather old.

VI.—(*3rd inspection.*) The regiment is in a very satisfactory state. Its drill and instruction is good, and its musketry practice excellent.

VII.—A very efficient regiment. The interior economy is good, and everything gives proof that the commanding officer discharges his command with zeal and ability.

VII.—(*2nd inspection.*) The regiment did not appear to be quite so steady under arms as it was at last year's inspection, but both European and Native officers understand their duties.

VII.—(*3rd inspection.*) The corps has improved since last inspection. The arms, clothing, accoutrements, &c., are all in good order. The target practice was indifferent, but the regiment has not had the sniders long. The men, however, drill well and skirmish in good style, and on the whole the regiment is considered in good order.

59. I have given all the above, as I esteem the testimony as most valuable coming from one who does not like the system, and who, it will be seen, does not hesitate to point out defects. I think it may safely be said that no conscientious and efficient inspecting officer could possibly have said as much of 11 regiments formerly as is here stated by one officer who rose in the old service.

60. If we turn to the conduct of the men, I find that in five years 1,313 men have been tried by court-martial in the troops under the Commander-in-Chief. This gives a fraction over 262½ per annum, or about three-fifths per cent. on strength—less than four per regiment. In the Punjab Frontier Force the trials have been 318, or 63·6 per annum, or less than half per cent. on strength, or 3½ per regiment. The dismissals, *whether by court-martial or by discharge without trial*, during the five years averaged less than four per regiment under the Commander-in-Chief and about over 5½ per regiment in the Frontier Force.

61. The trials of course include those in which acquittals ensued, and an analysis of the offences for which men were tried would show that many were not of a very serious nature. I believe no army but the Indian could show such an absence of crime.

62. If we next test the state and popularity of the service by the number of desertions, we find that in five years the average annual number of desertions in the army under the Commander-in-Chief amounted to as nearly as possible one half per cent., say seven men in every two years in an infantry regiment, and a little over two men per annum in a cavalry regiment. These desertions, however, take place mainly among men of particular races, and in some regiments desertions are almost unknown.

63. In the Punjab Frontier Force, strange to say, the desertions have been even less, amounting only to a fraction over a quarter per cent., and not equaling three per regiment. This is a most extraordinary circumstance, considering the proximity of the frontier, and the originally wild and improvident nature of a large part of the soldiers who compose the Frontier Force.

64. The facility or otherwise of recruiting, and the number of men who voluntarily take their discharge before obtaining pension, are some tests of the popularity of the service Now on looking to vacancies, we find that on the 1st January 1875, in the Bengal cavalry, the vacancies were 26 or less than one and a half per corps; in the Bengal infantry the vacancies were 663 or 15 per corps, that is about two per cent.; in the Frontier Force the vacancies were 200 or 10½ per corps. Considering that recruits receive no bounty, and on the other hand actually receive little pay for a long time after joining,—that regiments recruit for themselves, without any special or paid machinery,—that discharges are freely given to soldiers who ask for it as long as their troops and companies are not ten men short of their complement,—and that some regiments are enormous distances from their recruiting grounds,—I think that the small number of vacancies in the ranks of the army is astounding! I suppose no army in the world is so well up to its establishment, even where conscription or other special means are resorted to for the purpose of supplying that army.

65. An analysis of the reports as to the quality of the recruits, too, is by no means unfavourable. Of course there has been no time when some officers would not be found to deplore falling off in their men, but I doubt if any impression that this is correct to any injurious extent would be formed now by those who have watched the Native soldier carefully for many years past, or indeed from the documents sent up. The great prosperity of the country, however, especially of the Punjab, no doubt does interfere with successful recruiting, but we have no reason to be dissatisfied on the whole with the recruits, and some of the measures already recommended in this chapter will assuredly stimulate good men to enter our ranks more freely than at present.

66. As is well known, discharge is freely granted when asked for by soldiers in the Presidency, and the number of discharges cannot altogether be taken as a test of the popularity or unpopularity of the service. Many of the soldiers are restless, and after a period of service desire to return to their homes. They are nearly all married men with their wives at their villages, and many have small stakes in land. Thus private affairs often render it desirable for men to return home, and if they cannot obtain leave they take their discharge. I therefore by no means admit that anything like a majority of those who take their discharge do so because they dislike the service. On the contrary it is not at all uncommon for men who have taken discharge, to enable them to settle some affairs at their homes, to return and re-enlist in their old or other corps, but whatever deduction we may draw from the discharges, they amounted in the Bengal army in five years to 5,151 or 1,030 per annum. This gives an annual average per corps of about 15 or about

2⅓rd per cent. on strength. In the frontier force the discharges at men's own request amounted to 2,005 or 401 per annum. This for 19 corps (counting the six batteries of artillery as one corps and also reckoning the cavalry and infantry of the Guides as one regiment) is equal to 21 per corps, and to less than 1¼ per cent.

67. Finally I would say, that as we have an army in good order, willing, obedient, and ready to distinguish itself, as I believe, for any service in or out of India, we should be very chary of meddling with so delicate and valuable an instrument, but that we should take the measures, not very extravagant in cost, already recommended as likely to contribute materially to the comfort and efficiency of that army; and I further consider that whenever a decision is come to, to this effect, as I hope will be the case, the Government will unmistakeably announce its confidence in the present system, and its determination to maintain it in its integrity, while ready at all times to attend to improvement in matters of detail.

CHAPTER III.

Madras Army.

I APPROACH the subject of the organization of the Madras army with extreme diffidence, as my acquaintance with it of course is limited, and my opinions are in some points opposed to that of officers for whom I have the highest respect, and who have much personal knowledge of that army. I have, however, never advocated a completely uniform system in the three armies of India. Uniformity seems to me essential in some respects in these three armies, which are so often brought together in cantonments or in the field, and in certain other respects uniformity between them is desirable, although not essential; but no doubt in many points an absence of strict uniformity is permissible, and perhaps desirable. I should, therefore, gladly support any measure which, though causing a difference in Madras from what I advocate for Bengal, would be at once workable and agreeable to the authorities and army of that Presidency.

2. From a perusal of the opinions of the Commander-in-Chief and the Members of Government of the Madras Presidency, forwarded with Colonel Silver's letter of the 15th April last, it is clear that the present system is disapproved of. This of course we knew before, but I cannot say that any satisfactory scheme has been proposed in place of it.

3. I will endeavour as briefly as possible to give the objections, and in doing so I find it will be convenient to drop the distinction I draw between the British and Native portions of the Bengal army in Chapter I. The two seem inseparably connected together in discussing the proper system for Madras, and I have already in Chapter I., on the British officers, Bengal army, touched on many topics which apply equally to the British officers of the armies of Madras and Bombay.

System of providing British Officers for the Native Army.

4. As to the system of supplying officers, the objections are the same as those referred to in Chapter I. of this note and in the appendices there cited, with the addition that candidates do not come forward, and that in time of war British regiments could not be called to give up their subalterns.

I do not think any of the objections urged from Madras have greater force there than in Bengal, except the failure of supply. This is a serious matter, and time only can show whether officers will come forward; but certainly the want of inclination to enter the Madras Staff Corps cannot arise, as alleged by Sir Frederick Haines, from the greater opportunity of obtaining civil employ in these Presidencies, for there are fewer officers in proportion away from the army in either Bengal or Bombay than in Madras. Indeed, in the grades of captain and subaltern, I find, by a return prepared by Mr. Kellner of the state of the three armies on the 1st July last, that out of 757 captains and subalterns in the Bengal army, 164 were in Political, Civil, Public Works, or other employment away from the army; in Madras 99 were so absent out of 341; and in Bombay 69 were absent out of 283. The proportions thus were as nearly as possible 22 per cent. in Bengal, 29 per cent. in Madras, and 24½ per cent. in Bombay.

5. If we take subalterns only, however,—that is, all officers of less than 12 years' service—and it is these, of course, who constitute the majority of officers who have entered the army of late years,—Mr. Kellner's return gives even a stronger evidence of the fallacy of Sir Frederick Haines' supposition that the entries to the Madras Staff Corps are few because there are greater facilities for entering civil employ in other Presidencies. In that return we find that of 240 subalterns in Bengal, 35 are employed on other than military duties; in Madras 13 out of 42; and in Bombay 18 out of 97. Thus the proportion of subalterns withdrawn from military employ in Madras is about 31 per cent.; in Bombay between 18 and 19 per cent.; and in Bengal a little under 15 per cent., or less than half the Madras proportion.

6. In point of fact, the reason assigned for the want of candidates is not the right one, and I believe the reasons were more correctly described in my note of 28th June last (Appendix B.) as arising from there being "hardly as good a chance of rising to the highest posts in Madras as in "Bengal; not so much prospect of distinction in the field, judging by the experience of the last "thirty years as in Bengal or Bombay; and that while many of the senior officers in Bengal, if "not in Bombay, approve heartily of the system of entrusting troops and companies to Native "officers, and various corps of those armies have earned much credit under the new organization, "the Madras officers have, it is understood, with hardly an exception, disapproved of the change "—and their army has had no recent experience of field service."

7. To this I would add that the very knowledge of the service they elect to enter, which I esteem as valuable in Bengal, no doubt operates against young officers entering the Madras army —an army in which they hear the officers perpetually decrying the system under which they are serving, and in which they must see that there is comparatively little prospect of military distinction.

8. The other objection to the system, not alluded to in Chapter I., although of course it is an objection which, if valid, applies equally to all Presidencies, is that the supply of subalterns from British regiments would fail in time of war. I do not see why it should. We are never likely to have a war which will necessitate the employment of every British regiment in India, and officers of regiments far from the scene of action could be well spared, and no doubt would be anxious to come forward. I have shown in Chapter I. what other reserves of officers we have in time of war; but if all these fail, we have still the resource of direct appointments of officers which may be expected to be as good both as respects numbers and quality as direct cadets appointed now. No doubt a very severe and prolonged war might require extraordinary measures to be resorted to to obtain young officers ; but this would apply to all armies ; and certainly if the British army was engaged in a very bloody and prolonged struggle, no one can suppose that we could afford to give young subalterns a thorough preliminary training at Sandhurst or elsewhere. We should have to be content with certain tests—perhaps a short course of professional instruction—and then hurry them off to regiments. The Indian army would be no worse off in this respect than the British, but in either case only very serious and lengthened operations would bring about this state of things.

9. I think that, so far as we have yet gone, the one real objection to the present system as respects Madras is that candidates may not come forward; and with respect to this I can suggest no better remedies than those contained in the first chapter, or some other methods that may be thought better suited for procuring young officers.

System of Promotion of British Officers in Native Corps.

10. In respect to the rise of officers regimentally, Sir Frederick Haines points out the great difficulties that have arisen in the Madras army from the reduction of 16 regiments out of the 60 that formed that army in 1860 ; but I am not aware that any system could have obviated these difficulties, unless all the officers of the reduced regiments had been pensioned. If they had done duty with the remaining regiments, and the latter had been retained on the old system, I think equal difficulties would have arisen under that system as under the present. Those difficulties, however, have been very real, and I by no means wish to underrate them. I think, however, that they are disappearing, and that in a few years they will altogether disappear.

Supersession of Senior officers in Regimental Appointments by their Juniors.

11. The case of senior officers serving under juniors in Native regiments has only twice occurred in the Madras army, so the difficulty arising from instances of this kind which has occasionally been seen in this Presidency has not been felt in Madras, and need not be discussed in connexion with that army.

Proportion of Senior to Junior Officers and Supply of young Officers.

12. The proportion of senior officers to juniors in the army is, as stated by Sir Frederick Haines, most serious. The cause of this has been detailed in Chapter I., but the evil has been excessive in Madras as compared with Bengal or Bombay. It would have equally occurred, as far as the age of the officers is concerned, under the old regular system if a reduction had taken place without new appointments until the proper number of reductions had been effected—only we then should have had the same old officers as at present, the majority of them holding rank much inferior to what they do at present. The increase of proportion of old officers in the face of reductions can only be effected under any system by a wholesale system of pensioning off the particular officers we desire to get rid of ; and this has not been thought practicable. The result is, that while in 1857 there were only 216 officers in every thousand who had completed 20 years' service, there is now a proportion of 482 in each thousand who have served for this period. It is a great evil, and everything that is possible should be done to diminish it. I have already in paragraphs 4 to 8 discussed the subject of the supply of young officers.

Withdrawal of Officers from the Native Army for Staff or Civil Employ.

13. As to the evil of withdrawing officers from regiments, Sir Frederick Haines thinks it undesirable that officers should join regiments with the object of leaving for other employment, but he would not press as a necessity the cutting off of officers from civil employ, though he would require them to become actual civilians after they have passed their probation. I think all I have said on this subject in Chapter I. applies here ; but I would observe that it seems strange, with such a want of military officers for regimental duty, 50 officers should have been taken for civil employ in the last five years. The army surely should first have been considered, and other arrangements would, I conclude, have been made for the civil administration if a strong representation had been made that the army was being rendered inefficient by such withdrawals.

14. The withdrawals, however, for this class of employment were after all at less than the rate of one officer per regiment in four years, and would not have been serious had there not been a dearth of young officers coming forward in Madras to supply regimental vacancies.

15. The number taken for army departments and those who returned to military duty in the last five years—50 and 84 respectively—appears to me excessive ; but without a very careful

analysis, for which I have not time, I cannot enter into the causes. It appears clear to me, however, that in any normal state of affairs in the Madras army neither the withdrawals nor returns to duty would be as large as this.

16. As regards the withdrawal of officers for civil employment, it will be observed that there is not complete unanimity in Madras. While the Commander-in-Chief would let them go to civil employ, he thinks this should be followed by a complete severance of their connexion with the army. The late Governor, Lord Hobart, would withdraw "all inducement of tempting civil "employment, either here or in other Presidencies, to disincline him to the appointment" (that is to a regiment), "unsettle his views, and impair his military experience and habits when he has obtained it."

17. Mr. Robinson, on the other hand, thinks that an important political end is subserved by allowing free passage through the lower ranks of the military service in the civil employment in India. He would, indeed, absolutely reserve certain branches of the administrative service—such as the Police—for young men who have served a certain period in the army. He thinks that civil departments are now suffering because young men with some military training are not available for them, and he considers that there is no training and no assurance for honesty and efficiency that is equal to the possession of Her Majesty's Commission. Indeed, Mr. Robinson evidently would increase and not reduce the proportion of military officers in civil employ. He does not say in what way he would, concurrently with this large drain on the army, secure that efficient officers should remain with regiments; but I gather from what he says as to the possession of Her Majesty's Commission, that he would retain officers in detached and civil employ in the army.

18. Mr. Ellis, again, thinks there will be no serious inconvenience if in the Madras Presidency itself the withdrawal of officers from the Army for all Civil, Survey, Police and Public Works employ ceases, though he admits they may be necessary for such employments in other parts of India. If withdrawn, he agrees with Sir Frederick Haines that they should cease to belong to the army and should become actual civilians.

19. While most fully admitting that any excessive employment of military men in civil employ is injurious to the army, and I believe altogether unnecessary, I imagine that it will not be thought right to resort to any extreme measure in prohibiting all employment of military officers in civil employ in Madras only or in all the Presidencies, and I think it would be quite sufficient there as elsewhere to put a limit on withdrawals for this purpose, as suggested in paragraph 42 of the first chapter of these notes.

20. Sir Frederick Haines, in connexion with this subject, would *second* officers in military employment if there is a return to the old plan of regimental promotion, which he earnestly hopes may be the case. The seconding of such officers can be carried out under the present system of regimental advancement, as proposed by his Excellency the Commander-in-Chief in India. I am not clear whether Sir Frederick Haynes advocates a return to the exact plan of regimental promotion formerly in existence in the Indian army. Any such return seems impracticable. Promotion, usually intolerably slow in the old Indian army, which officers entered and would enter for life, and not for a few years as many do the British army, would be even slower now than formerly, as purchase could not be resorted to to quicken promotion, and it seems out of the question to revert to that old organization, at all events without some great modifications the scope of which it would be extremely difficult to indicate.

21. Sir Frederick Haines thinks the Commissariat should be a branch of the army, but not the Pay Department, which he couples with the Police—why, I do not know. The Police has no necessary connexion with the army, and the Pay Department is part of it, its officers having to accompany forces into the field. It should in my opinion, as already stated in Chapter I., paragraph 35, continue to be a part of the army. This is also the opinion of Lord Napier of Magdala.

Sufficiency of the Complement of British Officers in Native Regiments and Competency of Native Officers to command Troops and Companies.

22. Sir Frederick Haines considers the present establishment insufficient for peace or war, and thinks there should be at least one British officer to a company; and to meet this he would give 16 officers to a regiment and reduce the number of companies to six. Mr. Robinson seems to agree in this view, and would add one or two to the subaltern grades so as to admit of detaching officers for civil employment without weakening cadres. Mr. Ellis also, apparently, concurs.

23. It appears to be the opinion of all these high authorities that it is hopeless to expect a Madras Native officer to command a troop or company in peace or war. The Native officers are said, even though well drilled and instructed, not to have that self-reliance and quick apprehension which the leader of a company should possess, and under the present system of pension they are too old; and Sir Frederick Haines proposes alterations in the present rules which seem very much in effect what I advocate. With respect to the Native officers, I observe that in the confidential inspection reports of Madras regiments, the Native officers of many regiments are said to be quite efficient in command of their troops or companies: but I will not lay too much stress upon what may not perhaps be intended to bear its literal meaning; but as to the impossibility of having thoroughly good Native officers, whether by selection from corps or from the outside, I confess I am a little sceptical.

24. It seems to me impossible that by proper training and selection 16 men out of 700 cannot be found competent to fill the post of commanders and subalterns of companies. As respects intelligence, I believe the soldier of the Coast army is equal to those of the other armies, and there is no reason to suppose that men who were selected for superior posts would not possess adequate courage.

25. Then as to selection from the outside, this has often been said to be impossible in Madras; but I see Mr. Robinson thinks "that military schools might be established, through which

" Natives of social standing might pass at an early age into the higher grades of Native officers " without passing through the ranks;" and Mr. Ellis, in paragraph 6 of his Minute, advocates a similar measure: so that the Native officers would consist of a portion who "after special training " had received direct commissions, and of Native soldiers who, by length of service or special " merit, had been promoted from the ranks to the commissioned grades." And Mr. Ellis believes that " under these conditions military employment would be popular among the upper classes of " Native society," and that there would be no danger in doing this.

26. It seems that this is very much what we are doing in Bengal, but without a college, and it appears to me that if such steps are resorted to as here recommended, we could hardly keep such qualified men in a thoroughly subordinate position to the latest joined sub-lieutenant. It would, I think, be inevitable that that such men should aspire to command troops and companies, and that they should only be under British officers of standing. I would observe, however, that to give a high college training to our Native officers seems to me highly inexpedient.

27. If the Native officers are so unfit for the positions assigned to them under the present organization, then the increase of pay allowed to subadars in 1864 was wrongly given to Madras, as the higher pay was expressly given in consideration of higher duties and responsibilities, to which, it is stated, these Native officers are not equal.

28. I am of course aware that the Native officers of the Madras army are for the most part, if not altogether, of the same class as the men, and that the habit of the men living their lives, as it may be said, in the regiments, and whole families belonging to the same corps, may not be favourable to the Native officers exercising a firm and important authority; but I should think this evil might be overcome, and on the whole, I believe, that the system in force in Bengal would succeed in Madras if vigorous efforts were made to introduce it. If I individually had to settle the matter, I would order accordingly, and I would trust that when once it was laid down by authority that the system was to continue, all ranks, and especially the higher ranks, would thoroughly accept and endeavour to work it, and not to run down an organization with which most of them were utterly unacquainted. In this case the Native officers should of course have the same addition to pay that I have recommended for Bengal.

29. If, however, it is decided to have British officers to command companies—and upon this point hinges nearly all the questions connected with organization of Native troops—then two courses are open:

I.—To have large companies, four to a corps, as shown under head 4, page 3 of my memorandum of the 18th July 1873, Appendix A. This would give a commandant, an adjutant, a quartermaster, four officers commanding the large companies, and four subalterns of companies. These could be Staff Corps officers on the present system, and, as proposed for Bengal, all officers in civil or *quasi*-civil employ could be struck off regiments and all in military employ seconded. This would almost always ensure the presence of an officer to command each company, exclusive of regimental staff, and when all officers rejoined from leave for service it would be rare for a company to be left to the guiding of a Native officer.

II.—To adopt Sir Frederick Haines' plan of six companies, with the complement marginally given. This would give, according to his allowance of five for absentees and three for regimental staff and excluding the field officers, six or perhaps seven officers. This would be quite inadequate to secure a competent British officer for each company; and allowing that officers in civil employ ceased to be borne on the strength of the army, and that officers in military staff employ were seconded, still it would be impossible to secure that an officer should not often be required for some *acting* military employment during his absence in which his place could not be filled up, while it would often happen that there was a vacancy at the bottom. It is doubtful, therefore, whether this complement would always give an officer per company, and it certainly would not do so without entrusting two or three companies to sub-lieutenants, hardly the class of officers to command them; while practically, no doubt, they would often have to be led by subadars, the class declared to be unfit to be leaders of companies.

1 Lieutenant-Colonel.
1 Major.
4 Captains.
6 Lieutenants.
4 Sub-Lieutenants.

30. This latter proposal seems unsuitable, and as it manifestly involves a regimental and not a Staff Corps system of promotion and involves the appointment of direct candidates, I would prefer to it a system more like the old one, and give a regiment a still larger complement. Indeed, by adding a captain and two lieutenants, the complement would be exactly that of the old Native army prior to 1840, and if, in addition to that, officers in military employ were seconded and those in civil employ struck off, it would be possible to secure that European officers should always be available to command companies.

31. I can, however, support neither Sir Frederick Haines' proposal nor the amendment on it. I would not refrain from doing so solely to maintain the Staff Corps, though I attach importance to that, but because I think that any proposal is bad by which we shall keep British officers for years in the same position as when they commence their career or soon after—that is in command of companies—and because I wish to advance Native officers; but they are proposals to be considered. If any change is to be made, I prefer alternative I. in paragraph 29.

Native Cavalry.

32. I do not here allude specifically to the Native cavalry, though all my observations I think apply to them. Papers specially relating to that branch of the service are now before Government, and will be separately dealt with.

Advantages for Native Soldiers.

33. I would give to the Madras army the advantages of garnts in aid of kit and half-mounting, &c., just as proposed for Bengal, the increased pay for Native officers being dependent on

whether they are to continue to command companies or not. There is a need, too, for some alteration in favour of the soldiers in the Madras hutting rules; but this is a question which may be separately dealt with.

Composition of Madras Regiments.

34. I entirely agree with Sir Frederick Haines that, as in Madras all regiments are constituted alike as to men, proportion of Hindus, and Mahomedans, &c., there would be no reason in constituting them into class regiments, regiments with class companies, or any other form of organization such as has been adopted in Bengal. All the men are natives of India, and the army comprises 1,967 Christians, 11,225 Mahomedans, 1,032 Brahmins and Rajpoots, 2 Jats, 433 Mahrattas, 10,140 Telingas or Gentoos, 3,107 Tamils, and 2,109 of other classes.

35. To make this chapter on the Madras army complete, I will now give, as in the Bengal army, a précis of statistics which enable us to form some idea of the state of the former army: and I may mention that, although the Commander-in-Chief, Madras, has not sent any abstract of the confidental inspection reports of corps, I am aware, from a careful perusal of these reports for the last four years, that the regiments are generally stated to be in good order as respects drill and discipline. This seems to show that the present organization, though labouring under abnormal difficulties, is not quite so bad as its opponents assert.

36. Of trials by court-martial in the last five years there were 1,168. This gives 233·6 per annum, or more than five per regiment, and about $\frac{3}{4}$ths per cent. to strength rather more than the proportion in Bengal, but still very moderate. The dismissals by court-martial or by order in the same period were 482, or a little more than two per regiment per annum. This is less than the proportion in Bengal, and I imagine that from the constitution of the Madras army and the prevalence of the "family system" in corps, dismissal is considered a more severe punishment than in Bengal. At all events it is less resorted to.

37. I would here observe that commanding officers in Madras generally decline to avail themselves of the larger power given them by law since the Mutiny, by which they can have summary trials on soldiers, and they continue to resort to the old practice of regular courts-martial. The difference between Bengal and Madras in this respect is striking. In Madras in the years 1872, 1873, and 1874, out of 714 trials, only 10 were by the summary trial; in Bengal, in the same period, out of 847 trials, all but 108 were summary; and in the Frontier Force there were but eight summary trials out of 245. It is difficult to account for the disinclination to resort in cases of crime in Madras to what is here looked on as a valuable adjunct to discipline.

38. The desertions in five years were 286, or at the rate of 57·2 per annum, about $1\frac{1}{3}$rd yearly in each regiment, or less than $\frac{1}{3}$th per cent. on strength. This is an astonishingly low proportion, and is no doubt owing to the fact that many of the men have no homes but the regimental lines, and to the existence of the system of recruit and pension boys brought up *in* the regiment, which institutions however are not deemed an unmixed advantage by some Madras officers.

39. As respects facility of recruiting, we must in arriving at a conclusion altogether exclude the cavalry, in which recruiting has been stopped for a long time past. In the rest of the Native army there were 552 vacancies, or $13\frac{1}{2}$ per regiment, and even this small deficiency is due in a great measure to corps serving in Burmah and at other places distant from the recruiting grounds There is no difficulty apparently in obtaining recruits of a good stamp.

40. On the whole, therefore, it cannot be said, as far as all the foregoing information enables any opinion to be formed, that the Madras army has in any way fallen off. Indeed, as there is more care exercised, as stated by Sir Frederick Haines, not only in promotions to the commissioned but also to the non-commissioned grades, it may be inferred that the Native portion of the army is in a better condition than formerly.

CHAPTER IV.

Bombay Army.

The Bombay army as respects the change to the existing organization was in a more favourable position than the Madras army, for two reasons. First, the reductions of regiments in the former were much less than in the latter, and consequently there were not so many surplus officers to arrange for; and secondly, a portion of the Bombay army was at the time of the change on the so-called irregular system with a small complement of British officers, namely, the three regiments of Sind Horse, the Poonah Horse, the 21st Native Infantry or Marine Battalion, the two Belooch regiments and Jacob's rifles, or eight regiments out of 37. Nor I think can it be denied that the Bombay army possessed a great advantage in the circumstance of the first Commander-in-Chief during the change of system (Sir W. Mansfield) and the next head of that army (Sir R. Napier), both having come direct from Bengal, both having served much with irregular troops, and both cordially supporting the new organization.

2. Hence but little representations as to difficulties, though no doubt some difficulties arose in carrying out the change, reached the Supreme Government, and the result has been that the alteration was carried into effect with more ease and success in Bombay than in Madras.

3. The opinions on the present system of the Native army received from the Commander-in-Chief and members of the Government of Bombay are summarised by Colonel Johnson in his note, and do not contain much that has not been already dwelt on and argued out in previous chapters of this note.

System of providing British Officers for Native Regiments.

4. There is not alleged in Bombay to have been any difficulty in obtaining young officers until within the last few months, and those who have joined are declared by Sir Charles Staveley to be "a very superior body of young officers," and with "but one or two exceptions all have taken to their new duties with credit to themselves." This would seem sufficient if the supply lasts, but Sir Charles Staveley is told they have a hankering for extra regimental employ, and he also thinks that the withdrawal of these young men is injurious to British regiments which lose some of "their best young officers," and he states that the 108th Foot has given 26 officers to the Staff Corps in 10 years. He therefore proposes some plans for direct appointments which may be worthy of consideration if that mode of obtaining officers has ever to be resorted to.

5. I would say, however, that as we have obtained excellent and, it may be added, trained young officers, we should not resort to any system of direct appointment until the present method fails; that we have no sort of guarantee that young officers appointed direct would have less hankering after extra regimental employ than those who come from regiments, while the remedy in either case is limiting withdrawals, which will practically make officers understand that for the majority regimental and army staff employ for fixed periods is all that is open to them. The complaint of officers commanding British regiments is not unnatural, and it is gratifying to hear (as I almost always do) that it is good officers who leave them; but we must recollect that these good officers never would have joined them for the most part if it had not been for the prospect of the Staff Corps. After all, have British regiments suffered? The instance of the 108th Foot, quoted by Sir Charles Staveley, is evidently exceptional, and it was an old Indian regiment to which I fancy a large proportion of Indian cadets or young gentlemen connected with India went. After all, however, the withdrawals even in this regiment have only averaged 2·10 per annum; and is there any reason to suppose that the 108th is the worse for these withdrawals?

6. The opinions on this point of the civil members of the Government advance no new points.

Promotion of British Officers in Native Regiments.

7. The views on this point in Bombay appear to be entirely met by the proposals made by Lord Napier of Magdala for ensuring regimental succession, and for seconding military staff officers. These, if approved, would of course be extended to all regiments on the present organization, and would, I think, remove every objection raised as to officers not being fixed in particular regiments. This will be easy of introduction in Bombay, where the number of unemployed officers is small.

Supersession of Seniors in Rank by Juniors in the Native Army.

8. As only one case of the kind has occurred in Bombay, while in nearly every British regiment there are seniors serving regimentally under juniors, there seems nothing necessary to be said on the subject.

Proportion of Seniors to Junior Officers.

9. The proportion is alleged to be injurious, and no doubt it is, but the causes of the excessive proportion are abnormal, and are explained in paragraph 14 of Chapter I. of this note.

Withdrawal of Officers from the Army for Civil or Staff employ, and return of Officers from the latter to the former.

10. It does not appear that in Sir C. Staveley's opinion the withdrawals have worked detrimentally, and he thinks staff officers return to their duties more efficient than when they left, nor does he object to the withdrawal of officers for civil employ if their places are filled. This latter is of course a *sine quâ non*. With the regulations proposed by Lord Napier of Magdala it is clear that Sir C. Staveley would desire no alteration as to withdrawals, and, as I have often urged, some limit should be placed in the withdrawal of officers for civil employ. Sir C. Staveley desires an extension of the system of seconding to all military staff appointments, and would therefore no doubt concur in the expediency of Lord Napier's proposed rules. Sir C. Staveley would make officers joining the army civil departments leave the army, and rise in grades departmentally —a proposal which would upset the excellent army departments, and be in my opinion mischievous. The existing system in this respect has many advantages, and should not be tampered with.

11. The statement given by Sir C. Staveley shows that in five years 58 officers have been taken for army departments and civil or political employ, that is, (supposing none were unemployed officers, which is very unlikely,) about 1⅓rd per each corps in five years, and 41 returned, or very little over one per regiment in five years.

12. The Governor of Bombay and Members of Council are in favour of more or less completely severing from the army officers in civil employ. I have nothing to say on this point beyond what is contained in previous chapters.

Sufficiency of Complement of British Officers for Native Corps in Peace and War.

13. The general opinion in Bombay appears to be to increase the complement, as the present though sufficient in peace, would not be so in war. Sir C. Staveley appears to think highly of the old system, but in my humble opinion he ascribes it to merits—such as those contained in paragraph 16 of a letter from the Adjutant-General, enclosed by Sir C. Staveley—which are wholly imaginary, and which embrace objects more likely to be attained by the present organization. I am not quite clear whether he would, under any circumstances, return to the old system in its

entirety: see paragraph 18 of the above-cited letter. The schemes, however, proposed by him and by the Adjutant-General for reorganization of regiments do not seem suitable to the Staff Corps system; and as to linking two or three regiments together, and calling them battalions of the same corps, I have already said all that occurs to me. In some respects the actual organization of battalions is in accord with that proposed by me in Chapters I. and II., if Native officers are deprived of command of companies. Any alteration in the direction proposed involves a change in organization, and I need not in this chapter treat of that subject separately.

Efficiency of Native Officers, and their Duties and Emoluments.

14. Sir C. Staveley does not think the Native officer can be so improved as to be fit to command companies in all situations, although he admits they are improved and can perform their duties properly at ordinary field days in time of peace. He does not show that they failed in war, but says he should not feel that confidence in them that he would in British officers. This is natural, but is hardly sufficient to condemn the attempt. Lord Napier of Magdala, who knows the Bombay army most intimately, has a different opinion, but will speak for himself, no doubt, in writing upon the Bombay army. The Governor and Civil Members concur in Sir C. Staveley's view.

15. It is not anywhere apparent that the men in the Bombay army are less intelligent or less brave than the men of the old Bengal army, and it is well known that many Hindustanees of the Bengal army have proved admirable Native officers in war in regiments composed of other races, and have commanded companies with distinction. No corps has seen more service, I take it, in the last 26 years, than the Guides, and for a large part of that time the subadar-major was an Oudh Brahmin, trained in a Bengal regiment, and who always proved equal to the important post he held in peace or war. I could name many other instances, and cannot possibly accept the view that the ranks of the Bombay army are destitute of men equally good.

General Remarks on Organization of the Bombay Army.

16. On the whole a perusal of all that has been written, a knowledge of the opinions of Lord Napier and Lord Sandhurst, successively for five years in command of the Bombay army, and from some little personal acquaintance with Bombay troops, I am strongly impressed with the belief that the present organization should be left untouched, and that all the measures proposed for British and Native officers, and for the native ranks generally in Bengal, should be extended to Bombay. This once decided, and it being distinctly stated that no changes would be made, I believe the Bombay army would be perfectly contented, and that there would be no doubt as to its efficiency.

17. The transformation of the light cavalry of the army into Silladar Horse was a very large measure, and might possibly have not succeeded. I believe it did succeed perfectly, and that the regiments are very efficient. Certainly, though one of the old Silladar regiments in Bombay has more than once been criticised by inspecting officers, the three old regiments transformed into Silladar Horse, are very highly reported on; and though the men may have disliked the change at first, I fancy now they would esteem it a punishment to be ordered to revert to the old regular system.

18. The inspection reports of the Bombay army are, as a whole, usually very favourable, and in some instances the Native officers are very highly spoken of.

19. I will now give the several statistics of the Bombay army that I have already given of those of Madras. There were 1,557 men tried by court-martial in the last five years, which gives an average of 311·4 per annum, or a little over eight per regiment, or about 1¼ per cent. The number dismissed by court-martial or summarily was 730, or 146·0 per annum, equal to four per regiment, or 0·580 per cent. The trials, it will be seen, were much more numerous than in Bengal. Of 940 trials in Bombay in 1872, 1873, and 1874, 712 were by the old process of court-martial, summary trials only being resorted to in about one third of the cases.

20. There have been 532 desertions in five years, or 106·4 annually, that is 0·423 per cent., or not three per regiment. The number of vacancies on the 1st January 1875 was equal to 27½ men per regiment, or 4·609 per cent., but this return was prepared just after what is the date of annual invaliding in the Bombay army, when the regiments are at their lowest.

21. I may observe that in Bombay discharge is not so freely given to men who ask for it as in Bengal, and that from the inspection reports it appears men sometimes complain of being kept in the service against their will. Sometime ago the Government of India asked whether it would not be well to introduce into Bombay the Bengal practice of allowing discharge very freely to those who asked for it in time of peace, but Bombay preferred to retain its own practice. The number of men so discharged, in five years, amounted to 382, or 76·2 per annum—about two per regiment.

22. The reports on the quality of recruits are not favourable, either as to facility of procuring them or as to quality. This partly arises, perhaps, from a rise in wages in the Bombay Presidency, and certainly to some extent from a restriction as to the districts from which recruits are now allowed to be taken. No doubt the Bombay army got fine men from Bengal, and very much object to the restrictions placed on their drawing men from this Presidency; a restriction which has been deemed necessary on political grounds. It is not, however, shown that the smaller men obtained in Bombay are really inferior as soldiers, and the small number of vacancies shows that there is no insuperable difficulties about recruiting under present rules.

23. The Bombay army is not of the same almost uniform composition as that of Madras, and three regiments of infantry are altogether composed of Punjabees, Beloochees, and the like. It consists of 310 Christians and 252 Jews; of 21,600 natives of India, comprising 4,446 Mahomedans, 2,951 Brahmins and Rajpoots, 51 Jats, 8,045 Mahrattas, 119 Telingahs or Gentoos, 3,025 Purwarees, and 2,963 of other castes. Of Punjabees there are 1,787 comprising 998 Mahomedans, 259 Hindoos, 509 Sikhs, and 31 Muzbee Sikhs. Of Trans-Indus men there are

780, comprising 175 Affghans, 182 Bordermen, 310 Beloochees, and 113 Persians. Of Hillmen there are 3 Goorkhas and 44 Dograhs.

This seems a judicious composition, except that the Mahratta element looks large. It, however, has no representative in the other armies.

CHAPTER V.

Pension System—Native Army.

There is a general impression in all the Presidencies that some revision of the pension regulations of the Native army is desirable, and with this is mixed up the system under which men can be discharged for inefficiency, without pension, and also proposals for an army reserve.

2. As in all other army questions, we must first form a conclusion as to what we really want—in fact, what is our aim in having a pension system at all. The two great objects, I take it, are to ensure that none but efficient men remain in the army, and that old and deserving soldiers have a comfortable provision when they leave the army. Of course out of a good system of the kind arise many contingent advantages, such as an increased inducement to enlist and for men to behave well when serving; the political advantage of showing that we take care of our servants in their old age, and we may add, notwithstanding the disapointment of 1857, the advantage of having pensioners who may be presumed to feel that their interest is identical with that of the British Government scattered up and down India in no inconsiderable numbers.

3. To a great extent our present system does ensure these advantages, and I believe is worth the large cost it entails; but if alterations are desirable, they should certainly be made if their cost is not prohibitory.

Discharges without Pension.

4. We may first consider our rules as to discharge without pension, and it is here unnecessary to refer to the case of the men who are allowed to take their discharge at their own request, or who are dismissed summarily or by court-martial for misconduct. There will always be a certain number thus got rid of and who forfeit all claims to pension. The permission to leave the service at their own request is a valuable privilege, and I would advocate its extension in full to the other Presidencies rather than restrict its operation in Bengal. I believe the privilege is one that is much appreciated and that adds to the popularity of our service, and I should find it difficult to persuade myself that even in Bengal, where these discharges are most frequent, the loss of 15 Native soldiers from each regiment every year—men who would serve on unwillingly if kept in the service—can do any harm to corps. In time of war, or when troops or companies are 10 men below their complement, this privilege is stopped.

5. Of discharges for unfitness, the first to be considered is that of the recruit. The commanding officer has unrestricted power to discharge any recruit who is obviously unlikely to become a smart soldier from any cause. As in the Native army it is generally many months before a recruit has gone through the whole of his training, there is amply time to judge if he is likely to turn out a smart soldier in all respects, and if this seems improbable, it is a commanding officer's interest to discharge him. This is a valuable safeguard against encumbering the ranks with men who, though they on enlisting had been approved, turned out during their course of instruction to be wanting in physical or mental qualifications necessary to make a smart soldier.

6. Of course the proportion of men discharged in this manner depends on the care exercised in enlisting recruits, and also on the individual opinions of commanding officers as to what constitutes a bar to a recruit turning out a smart soldier. It appears, however, that during the last five years in Bengal out of 17,628 men enlisted, 2,243, or say one in eight, were thus discharged. In the Frontier Force 7,160 men were enlisted and 901 discharged as recruits, or about the same proportion as in the Bengal army; in Madras out of 6,662 men enlisted, 65 were discharged, or about one in 102; and in Bombay 7,421 were enlisted, of whom 139 were thus discharged, or about one in 53.

7. To look at it in another way, there were about six and a half recruits discharged in each regiment of the Bengal army per annum; in the Frontier Force about ten per regiment per annum; in Madras about one and a half per regiment *in five years;* and in Bombay about 3¾rds *in every five years.* So great a difference between Bengal and the other Presidencies can hardly be accounted for by any difference of care in first enlisting, and points at some radical difference in the systems of the armies, or in the views generally held by commanding officers, just as there is a radical difference in the mode of granting at their own desire discharges to older soldiers and in trying soldiers by ordinary instead of by summary courts-martial. It may be worth while to inquire what the exact system is under which recruits are discharged in Madras and Bombay, for I think the practice in Bengal, though giving more trouble, inasmuch as it brings in a larger proportion of recruits, is well suited to render regiments efficient, and perhaps remotely to keep down the pension list, and even indirectly to cause a better supply of material in regiments from which to select for the non-commissioned and commissioned grades.

8. After a recruit is finally passed into the ranks he can only be discharged (save for misconduct or at his own request) if declared physically unfit, and in such a case he receives no gratuity if of less than five years' service; but in this as in the other cases of discharge under this rule, a free passage is given by rail or Government steamer when such means of conveyance are available in the direction of the men's homes. If of more than five years' service, he receives a gratuity of three months' full pay, and if above ten years' service, six months' pay, including in each case good-conduct pay. To establish a man's unfitness under this head, he must be declared

unfit by the annual invaliding committee or by a special medical committee; but if the man is serving where a committee cannot be convened, he can be discharged summarily by the commanding officer with gratuity on the certificate of the regimental medical officer.

9. Men who have served 14 years, and who become physically unfit, are to be retained until they are entitled to pension on the completion of 15 years' service, unless there are very special circumstances, when, with the sanction of the Commander-in-Chief, they may be discharged with a gratuity of six months' pay.

10. In the Bengal army in five years, the number of men of less than five years' service thus discharged without any gratuity was 394; in the Frontier Force 146, in the Madras army 80, and in Bombay 160. In Bengal, in the Frontier Force, and in Bombay this gives between one and two men in each regiment yearly; and about one man in three years in Madras, the latter Presidency again showing a marked difference, and a difference presumably in the direction of retaining some men who might advantageously leave the service.

11. If properly worked, this last class of discharges is a valuable aid to efficiency, as the man's discharge costs nothing, and at the same time he is young enough to take other employment unless indeed he is absolutely unfit for any work.

12. The next class of discharges is one that is given on the same grounds and under the same rules as the preceding, except that gratuity is granted on the scale shown in paragraph 8, and that it applies only to men over five and under fifteen years' service. Under this head in five years 1,126 men were discharged in Bengal; 267 in the Frontier Force, 154 in Madras, and 314 in Bombay. This gives a little over three per regiment yearly in Bengal, about three per regiment of the Frontier Force, about *two in every three years* in Madras, and a little over one and a half per regiment in Bombay.

13. Here, again, we should be led to infer that Madras retained men who should be discharged, and thus to a certain extent defeats the object of Government in giving these gratuities.

14. After 15 years' service a pension is given when a man becomes unfit, but to men of less service who are unfit for duty from wounds or from injuries sustained in service, and generally even from serious injuries sustained in peace in the execution of duty, pensions are given according to a regulated scale.

15. Now it is to be observed that from 15 to 40 years' service everyone receives the ordinary pension, and that there is no inducement, as far as pension is concerned, for a soldier to prolong his service for a single day, with two exceptions; 1st, that if he is a non-commissioned or commissioned officer, he must have served three years in his grade to be entitled to the pension attaching to it; and 2ndly, that if he has reason to expect promotion, he may endeavour to remain on not only to obtain that promotion, but also to serve three years in the higher grade to secure the pension of it. A sepoy *who knows he has no prospect of promotion*, therefore, has little inducement to endeavour to serve if he can obtain pension, as the Rs. 4 per mensem he would receive after 15 years' service is not open to increase until he has served 40 years with unblemished character, when he would get Rs. 7 per mensem. So a havildar who had served above 15 years and three years in his rank, and whose qualifications were such as to bar his rise to the commissioned grades, could gain no pecuniary advantage until he has served 40 years. It is therefore not to be supposed, I think, that many of the bad bargains of the army do endeavour to conceal defects when entitled to pension in the hope of holding on for the higher pension claimable by men of *unblemished character* after 40 years, and in point of fact, though the contrary has been alleged, very few men ever do serve for the 40-year pensions, and they are nearly all Native officers.

16. This is conclusively proved by a reference to the returns, which show that in five years in the Bengal army only 88 men transferred to the pension establishment received the superior rate of pension to 5,988 on the lower rate; in the Frontier Force 3 men to 1,630; in Madras 188 to 4,084; and in Bombay 21 to 4,282. Thus, as nearly as possible, of those transferred to the pension establishment, one in 64 men has served 40 years in Bengal; one in 545 in the Frontier Force; one in 22 in Madras; and one in 204 in Bombay. Madras again here has a large preponderance of men kept on. This to some extent is accounted for in Bengal by the fact of so many old soldiers having disappeared during the Mutiny, and, as respects the Frontier Force, by there being in it no men of 40 years' service, except the limited number of transfers sent to it from other corps on its formation in 1849. This explanation can only be accepted to a certain extent, for I often see remarks in inspection reports on Madras regiments which show that men are retained after ceasing to be really efficient to secure for them this higher rate of pension; while, though the Bombay army for the most part remained intact during the Mutiny, Madras gives to the pension establishment ten times the number of men of 40 years' service in proportion to the number of pensioners that are given by Bombay.

17. Even in Madras, however, as there is not one man of 40 years' service pensioned annually from each regiment, the number of men remaining for the higher pension must be insignificant.

18. Passing to men of lower periods of service invalided on the ordinary rates of pension, the returns procured enable us to see how many went after different periods. The following table shows this :—

Army.	Total number invalided in five years.	Number of men invalided in each period of service.				
		15 to 16 years' service.	16 to 20 years' service.	20 to 25 years' service.	25 to 30 years' service.	30 to 40 years' service.
Bengal - - -	5,598	2,393	1,568	1,022	684	331
Frontier Force - - -	1,630	544	636	408	38	4
Madras - - - -	4,084	365	1,156	869	760	834
Bombay - - -	4,282	442	1,525	745	1,081	489

NOTE.—The numbers who had served upwards of 40 years are given in paragraph 16.

From this it appears that very nearly two fifths of all the men who receive the ordinary pension in Bengal have gone before they have served 16 years', while five sixths go before they have served 25 years. In the Frontier Force about a third leave during their 16th year of service, and very few indeed are pensioned after their 25th year. In Madras less than one twelfth go in their 16th year of service, and about two fifths have remained until they have served from 25 to 40 years. In Bombay little more than a tenth go in their 16th year and considerably more than a third are pensioned between 25 and 40 years.

19. The great preponderance of men who have gone to the pension establishment in Bengal when they can claim pension is no doubt partly due to the fact that many men who were not young enlisted in 1857 and 1858, and completed service in 1872 and 1873, when they were pensioned in large numbers; but this, of course, cannot apply to men who have served more than 20 years and who therefore enlisted before the Mutiny; and we find that while in Bengal of 2,037 men pensioned after 20 years' service less than half had served more than 20 years, in Madras more than two thirds had served over 25 years, and that almost exactly the same proportion prevailed in Bombay.

20. I may here conveniently observe that the annual charge for pensions to the Native armies, exclusive of pensions to the heirs of Native soldiers killed in action, or who die in foreign service, is, in round numbers, Rs. 12,80,000 for Bengal, Rs. 17,80,000 in Madras, and Rs. 8,77,000 in Bombay. This giving a charge for pensions of about Rs. 20-5 for each effective soldier on the Bengal establishment, Rs. 52-5 in Madras, and Rs. 32-13 in Bombay. This of course gives a much larger percentage on the strength of the army in Madras over Bengal or Bombay, and in Bombay over Bengal, but this is to some extent accounted for by the disappearance of pensioners and men entitled to pension in Bengal during the Mutiny. The charges on this account, however, prior to 1857 were larger in proportion in the other Presidencies, and specially so in Madras.

21. The system of invaliding, though I suppose admitted by all to answer to some extent the ends stated in paragraph 2 of this chapter, is alleged by many to have grievous defects. As to representations as to the nature of these defects, I think we need not go far back, but confine ourselves to recent representations. First the Commander-in-Chief of the Bombay army in the Adjutant-General's letter of the 4th July 1874 represented that Native officers and soldiers of less than 40 years' service, though physically fit for the service, were sometimes mentally unfit for their positions, and were not declared unfit for the service by invaliding committees. His Excellency said from the confidental reports it was seen that the army was encumbered with 29 Native officers who were unfit for their positions from one cause or another.

22. The other evil brought to notice by the Commander-in-Chief at Bombay is, that as no higher pension is claimable by a man who has served 15 years until he has completed 40 years' service, many men malinger and pertinaciously resort to hospital when they have served the shorter period in order that they may obtain pension, and though in some cases punishment overtakes them, sufficient evidence is often wanting, and the evil example of successful malingering very injuriously affects discipline.

23. Lord Napier of Magdala, to whom the representation from Bombay was referred for opinion, agreed as to the desirability of revising the rules for invaliding and pensioning Native soldiers. His Lordship thought that the small number of soldiers who were pensioned after 40 years' sevice, 65 in 1873-74, as compared with the number invalided earlier, namely, 6,626, coupled with the alleged increased difficulty in recruiting and the eagerness of soldiers to be invalided after 15 years' service, show that the system is radically defective, and that the present terms of service are unpopular. He thinks, considering the precocity of Asiatic races, that to confine pensioning until after 40 years' service is tantamount to giving no pension at all, and that to limit pensions to invalids instead of holding out an inducement for continued and faithful service is injurious and tends to maintain a system of constant and successful malingering. His Excellency adds that so far from securing regimental efficiency the long service clause of the Military Regulations* is a frequent source of discord between commanding and medical officers.

24. Sir F. Haines thinks the pension rules seem to be framed expressly in view to retain old men in the ranks, and the result is that the subadars are of the average age of 54.

25. Briefly, then, the objections are two-fold, and seem somewhat to clash one with the other. The first is that some men keep on in the service who are really unfit, though not physically so to a marked extent, and the other is there is such an intense desire to get out of the service on pension that large numbers malinger and feign disability as soon as they have completed 15 years' service.

26. Sir Augustus Spencer, in support of his opinion as given in paragraph 21 of this note, gives a roll of 29 Native officers of the Bombay army. It appears, however, that only five of these have ever been before an invaliding committee, so it can hardly here be said that the evil of men sent before invaliding committees for other than actual physical unfitness being "usually" declared fit by these committees has arisen in their cases. Indeed, a reference to the list shows that many of the cases were those of men who should never have been promoted, or might now be with perfect justice brought to notice as inefficient in view to their being removed from the effective list. Nearly half of them, too, are under 30 years' service, and therefore presumably under 50 years of age. The disqualifications of some are

* NOTE.—Paragraph 2725, prescribing who are to be deemed unfit for service by invaliding committees, Clause C:—
"Long service men who, although not much in hospital, and not suffering from disabling disease, yet from old age and length of service have become debilitated and physically incapacitated for active service; whose senses and mental perceptions have become so dull and impaired as to render them unable to perform their military duties to the satisfaction of commanding officers and up to the requirements of the service; men whose presence in the corps is more or less an encumbrance as long as they occupy the place of able-bodied men."

such as would be found in many officers of British regiments, while in some cases clearly the commanding officer was to blame who promoted them, and the whole number after all is 29 in 38 corps. The evil complained of does not appear here to be very strongly made out, while no facts are given as respects the alleged tendency on the part of many men to malinger as soon as they have completed 15 years' service, beyond the statement that it was brought to his Excellency's notice that the present rules injuriously affect the efficiency of the Native army.

Lord Napier gives no details to show that the invaliding system is unsuitable, except that a very minute proportion of men remain for their increased pension, and that there is an eagerness to get to the invalids after 15 years' service.

Sir F. Haines' objection to the prolonged retention of men is borne out by the fact he quotes that Native officers in Madras are of the average age of 54.

27. Now what are the remedies proposed?

Sir A. Spencer would render Native officers and non-commissioned officers liable to be removed to the pension list if unfit from any cause not cognizable by court-martial should the Commander-in-Chief recommend it. Secondly, that men of these grades under 30 years' service be similarly liable to be transferred to the pension establishment on the report of a military board composed of two field officers and one medical officer, and that a graduated scale of pension be introduced, based on one that formerly existed in Bombay, as an inducement to the soldier to go on serving as long as his health permits.

28. Lord Napier's proposals are mixed up with a scheme for a reserve,—a very large measure to which I shall separately allude hereafter, and I am not quite clear if I understand the scope of the proposals on one or two points. However, I believe that the following is a summary of his Excellency's suggestions:—

I.—That the system of discharge of inefficient short service men with gratuity be somewhat altered, and that instead of as at present no soldier receiving a gratuity on discharge until he has served five years, and then only receiving three months' pay as gratuity, that he shall be given three months' pay after serving three years, and that a sepoy discharged between five and ten years shall receive double the present gratuity, or six months' pay, while the soldier of ten to fifteen years' service should receive nine months' gratuity instead of six months as at present. His Excellency further would give a gratuity (not a pension) to inefficient men who had served from 15 to 20 years, of one year's pay.

II.—His Excellency would give no pension before 20 years' service was completed, instead of 15 years as at present, unless in the case of men invalided from disease contracted on service or in specially unhealthy localities, as specified in paragragh 14 of the Adjutant, General's letter of the 16th November 1874.

III.—That after 20 years' service all men be entitled to proceed to their homes, and pass to a reserve, it being competent to the State to suspend the application of the order for a limited period, or in particular parts of the army to meet State exigencies.

IV.—That all pensioners be liable to be called out until a service of 40 years is completed; that they present themselves yearly for payment of pensions, and then be under arms for a month's training, unless physically unfit, during which month they should receive the full pay of their rank.

V.—That the rates of pension for these soldiers be dependent on length of service, according to a scale which I here extract and compare with the present rates of pension:—

Scale of proposed Pensions.

—	After 20 years' service ½ full pension.	After 25 years' service ⅝ full pension.	After 30 years' service ¾ full pension.	After 35 years' service ⅞ full pension.	After 40 years' service full pension.	Present Rates.	
						Ordinary rate of pension.	After 40 years' service.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Subadars 1st Class -	25 0 0	33 5 4	37 8 0	42 13 8	50 0 0		
„ 2nd „ -	22 8 0	30 0 0	33 12 0	38 10 0	45 0 0	25* 0 0	40* 0 0
„ 3rd „ -	20 0 0	26 10 8	30 0 0	34 4 6	40 0 0		
Jemadars, 1st „ -	15 0 0	20 0 0	22 8 0	25 11 5	30 0 0		
„ 2nd „ -	10 0 0	13 5 4	15 0 0	17 2 3	20 0 0	12 0 0	20 0 0
Havildars - -	7 0 0	9 5 4	10 8 0	12 0 0	14 0 0	7 0 0	12 0 0
Naiks -	6 0 0	8 0 0	9 0 0	10 4 6	12 0 0	7 0 0	12 0 0
Sepoys, Drummers, and Buglers.	3 8 0	4 10 8	5 4 0	6 0 0	7 0 0	4 0 0	7 0 0

* The ordinary rate of pension can be claimed after 40 year's service irrespective of fitness for further duty. It is also granted to men who may be invalided after 15 years' service.
The superior rate is only granted to men invalided after 40 years with unblemished character.

VI.—Lord Napier of Magdala would not alter the rules with respect to wound and injury pensions.

29. Sir F. Haines offers no details as to alteration in the system of pensioning, but complains that "old and effete havildars encumber the rolls of our regiments, and will continue to do so as long as military efficiency is made subordinate to the dictates of a medical committee." He also complains of the age of subadars.

30. The points which strike me as perhaps open to objection in the invaliding rules are that 15 years is a very short period after which to give pensions, a pension, too, equal to ⅘ths of the full pay of the soldier, excluding good-conduct pay; that 40 years is too long a period to require

a man to serve unless he breaks down or before he can absolutely be required to retire; that in the higher grades the pensions are small for men of any social position; and that perhaps there are disabilities which would be better judged of by a military or mixed military and medical committee rather than by a committee composed exclusively of medical officers.

31. As respects the first objection, all that can be said is that if it errs, it errs on the side of liberality, and that it perhaps conduces a good deal to efficiency to get rid of men who really cease to be thoroughly efficient after 15 years, as some no doubt do. Further, any lengthening of the term could only be made prospective, and I doubt if it is worth while to make much a prospective alteration.

32. As to the second objection, I must observe that though, as remarked by Lord Napier of Magdala, Asiatic races are precocious, it cannot be said that the men composing our Native Army break down early as a rule. On the contrary, men of very long standing are remarkably strong and hale, and I have known subadars of 55 who were as good as some of the young European officers in the matter of walking. If any one will ask to see the soldiers of 15 years' service in a British regiment (of whom there are very few), and compare them with Native soldiers of 20 or even 25 years' service, I think he will say that the Natives are the more fit to serve on. Still 40 years is a very prolonged service, and I would reduce it to 35 in the case of all Native officers and to 30 in the case of other grades. That is, while I would retain the power of invaliding or discharge after any period, I would at 35 or 30 years respectively allow all men to retire without going before a board, or empower the commander-in-chief on the recommendation of the commanding officer to require their retirement. They should, *if of unblemished character*, receive the pension given after 40 years, and if not, they would only receive the ordinary pension of their rank. This I believe would be an immense boon to the army, and would effectually secure that no men of very advanced age were left in the service: it would cost some money, but not a very large sum. If the idea is approved, approximate calculations could be made. In five years in all three Presidencies 1,658 men were invalided, who had served over 30 and less than 40 years, and a considerable proportion of these men under my proposal would have received some additional pension.

33. As to pensions being rather inadequate in the higher grades, I think certainly that to a Subadar or Ressaldar retiring after 37 or 38 years' service, Rs. 25 per mensem is a small income, especially in the cavalry, where the pay is higher than in the infantry, and where many men are of high social standing. After 40 years' service the pension (Rs. 40) is more adequate. If my proposal in the last paragraph was accepted, they would receive Rs. 40 five years earlier, and as those who have been Subadar-Majors receive Rs. 25 extra to their pension, and would, according to my proposal in Chapter II., receive Rs. 50 instead of Rs. 25, and as the most distinguished Native officers are Bahadurs and Sirdar Bahadurs, and receive Rs. 30 and Rs. 60 per mensem extra respectively, I do not know that these Native officers can, on the whole, be deemed to receive inadequate pensions, especially as many of them are of low social standing and began on Rs. 7 a month.

34. Still some are so distinguished and have come from such good families, that the pensions seem small for them, and I would suggest that their case might be met by a grant of distinguished service pensions, as is now given to the British officers, to a limited number selected by the Commanders-in-Chief and approved by Government. A grant of a 150 pensions of this kind of Rs. 50 a month, or a total cost of 9,000*l.* a year, would be money well laid out in this way, and would be a powerful incentive to unexceptionable and distinguished character and efficiency on the part of Native officers.

35. I further think that the pensions of Jemadars are not sufficient. They receive Rs. 12 ordinary pension and Rs. 20 full pension. The former seems especially small for a commissioned officer, and does not bear at all the same proportion to pay that a sepoy's pension does to his pay. I think a Jemadar might fairly receive Rs. 18 ordinary pension and Rs. 25 after 35 years' service. It is often the case that a man has been a very good non-commissioned officer, but after promotion is found hardly to come up to the mark as an officer, though deserving and well conducted, and it is desirable that such men should leave the service and not remain discontented in consequence of its being impossible to put them in the important position of commanders of companies.

36. With respect to committees, I believe medical committees have done their duty well on the whole, and they have conscientiously acted in what they believe to be the best interests of the State. I would continue medical committees as at present for all cases of physical disability, but for cases sent up under the clause of the Military Regulations quoted in the margin of paragraph 22 of this note, I would have a mixed committee of two field officers and a surgeon-major. In this and in the other case the general officer commanding the division should carefully examine every man passed and intimate want of concurrence in the rolls sent up whereon he does not agree with the committee, and in such cases the decision should rest with Government. This is now the rule, but I think it will be desirable very strongly to impress on general officers the responsibility that rests on them in this matter, and if this is done and the above alteration carried out, I think there will be a good guarantee that no men fit for the army are pensioned, or that men considered unfit are retained.

37. I do not think any other alteration is needed. I cannot think there are many cases of men who have just completed 15 years' service malingering, or that there is any need to have graduated scales of pension according to length of service beyond the two rates now given for each grade, modified as proposed. In point of fact, promotion which almost certainly comes up to a certain point to the good soldier, does supply a graduated scale. Further the existence of a graduated scale affords much temptation to a kind-hearted commanding officer to retain men of good character, but who have become inefficient, to enable them to earn a higher grade of pension. This can hardly operate now to any great extent.

38. Of these alleged malingerers I should like to see more detailed information. Such cases used to occur formerly, but were very rare. It is true that we hear of cases of men who are so very clever that they successfully simulate diseases or infirmities, but it is a hazardous thing for even a clever, determined, and persevering man to attempt, and any other would fail under constant watch and medical supervision. If at any time a man is believed to be malingering he can be tried under the 58th Article of War for disgraceful conduct, and on conviction may be sentenced to dismissal and to other punishment up to 12 months' imprisonment with hard labour, and the trial may be *summary*—that is, the court need only consist of the commanding officer. Further, when brought before an invaliding committee, if the committee consider that the man is feigning disability, he is immediately to be tried by court-martial under the above-cited article.

39. Is it likely that many men attempt to obtain pensions by malingering with all this risk? At all events, before we act on the belief that malingering takes place to any extent, I should like to see reports of commanding officers of the cases that have occurred, or that they believe have occurred. I believe there has been great anxiety to obtain pension recently on the part of the many men who enlisted during the Mutiny, and who were much older than usual, but this inconvenience is now passing away.

Army Reserve.

40. I have nothing more to say about the pension system, but I must advert to the Commander-in-Chief's proposals to form a reserve. I think this is a question that must be looked at greatly from a political point of view. Is it desirable to have such a reserve? I do not suppose they would ever do much harm, for I presume arms would only be issued when the men were under training or when they were called out. Neither do I think they would do much good, for the majority would be very old and most of them more or less rusty.

41. For mere garrison duty I think we could obtain at any time, if necessary, a good proportion of the efficient pensioners without organizing a formal reserve. In the mutiny the pensioners failed us for the most part, but so would a reserve, and perhaps the latter might have been more formidable. The army from which these men came, however, was against us then, and their sympathies lay with it. In any other case I have no doubt if we wanted them we could obtain the services of nearly all the pensioners who were worth having for garrison duty, and with a few days' drill they would answer for keeping charge of garrisons.

42. I do not quite follow his Excellency Lord Napier's arguments as to the necessity for such a reserve derived from experience of what took place when the Abyssinian force was sent from India, or when the Umbeyla campaign took place. India is not supposed to keep a surplus army for service out of India, and when it detaches one it is only what may be expected, that it should at all events to some extent replace the force taken from it, and this would be necessary if India could spare the troops sent, as India has not only to send but afterwards to maintain that force, and no one could be certain when troops went to Abyssinia how long they might remain there. I am not aware that any nations neglect to increase their armies when they go to war, and the fact of recruits having been raised to replace the drilled soldiers taken from India seems no argument for keeping up a reserve of old soldiers. Nor as respects Umbeyla was any inconvenience felt from want of a reserve of this kind, but rather from mistaken proceedings, and I am not aware that when troops had to be pushed up there any regiment was hindered from leaving its station by the want of a reserve of pensioners to take its place.

43. The alteration of the rules under which pension is now given, as proposed by his Excellency, would, I think, add a good deal to the cost of pension establishment, especially that allowing men to leave regiments after 20 years' service unless there was special reason for keeping them. The incidental expenses of the reserve and grant of full pay for a month in each year, too, would form no inconsiderable item, and I do not exactly see what "immediate saving in the "invaliding accounts would probably go a long way to meet the contemplated expenditure," as hoped in the letter of the 16th November, paragraph 17. I do not see how there can be any immediate saving on invaliding, as the present soldiers could hardly be deprived of their existing privileges, and I doubt any future saving by merely extending the term of service to entitle to pension from 15 to 20 years, and at the same time very generally increasing the pensions, especially as a not inconsiderable number would, under his Excellency's proposals, obtain pension after 15 years.

44. On the whole I do not see grounds for going to this expense, or that it would be politic, or add to the popularity of the service to have a reserve, but his Excellency relies rather upon the necessity for changes by urging that the terms of service are unpopular, and in the letter of the 16th November this is said to be proved by "the alleged increased difficulty in recruiting and the "eagerness of soldiers to be invalided after 15 year's service," as well as by the small proportion of men who remain on for the superior rate of pension. It does not strike me in the same light at all. We have our army perhaps more complete than any army in the world, without conscription, and without bounty and without a free kit. The desire to obtain pension and return home after 15 years, if it really exists in many, is not unnatural, but is rather the result of the family ties of the men, and the rules under which they can obtain pension after so short a service. I doubt, however, whether the existence of such a desire is at all a permanent one, but is, I think, as I have before said, mainly owing to so many old men being enlisted during and immediately after the Mutiny.

45. In the Adjutant-General's letter of 30th June 1875, copy of which is attached to that of the 15th August, it is stated in support of the view as to the necessity of measures to support or

restore the popularity of the service, that out of 37,036 sepoys and sowars under the Commander-in-Chief's orders, 17,465 are under six years' service, *showing that a large number of men do not find it worth while to remain long enough to entitle them to the first good-conduct rate of pay.* I confess that I do not comprehend how the fact bears this inference. Before any such inference can be drawn, several other facts would have to be considered, but I am not at all sorry to find that there are 17,465 privates of less than six years' service to 19,571 of more than that service, besides the 4,946 non-commissioned officers presumably all of longer service. In point of fact not more than about a third of the vacancies in the past six years have been occasioned by men voluntarily taking their discharge.

46. I believe the remedies I have suggested are sufficient as respects invaliding and pensioning.

CHAPTER VI.

Conclusion.

BEFORE finishing this note on the organization of the Native army, I have to advert to some questions which affect the whole army of India, or the consideration of which was omitted in the previous chapters.

2. It will be gathered from what I have already said, that I am strongly in favour of two great principles of the existing organization—the maintenance of a Staff Corps system, and the retention of Native officers as commanders of troops and companies.

3. With respect to the latter, I need say no more than I have already done, except to observe that of 184 regiments of cavalry and infantry officered by the Staff Corps and local service, 100 have, since their being raised, always had their troops or companies under Native officers; and with respect to the former, I would remark that, I have nowhere seen any proposal for an organization except that of the Staff Corps, which, as respects the British officers, at once provides for trained and, to some extent, selected officers joining Native troops, for supplying the various extra regimental demands for British officers, and for without difficulty ensuring that promotion to each higher grade in a Native corps shall only be given to officers perfectly qualified for advancement. If it had been settled to maintain the old organization in 1860, it seems to me that it would certainly have been upset soon after, and I doubt the possibility of having a Staff Corps or anything somewhat similar in one Presidency and not in another. For instance, if the old organization or anything at all like it was settled for Madras now, while Bengal retained a Staff Corps, I think it is quite certain that in a very short period we should find Madras pressing to be placed on the same footing as Bengal.

4. The Staff Corps system is of course more especially applicable to an organization under which Native officers command troops and companies, but it is quite possible to adapt it to a system of large companies and of squadrons. By this, with staff, an infantry regiment would have 11 European officers and a cavalry regiment 9. If we go beyond this, and give a large body of European officers, then the Staff Corps system becomes inapplicable, at all events for regimental officers.

5. Assuming that the Staff Corps is maintained, and that regiments continue to have seven officers each, it is worth while to inquire how many officers we shall require for regimental duty. I estimate that our wants would be according to the following calculation, and in making it I assume that Bengal furnishes the officers for the Frontier Force, Madras for the Hyderabad Contingent, and Bombay for the corps in Central India and Rajpootana. Of course there will be no rigid rule on the subject, and officers of all Presidencies are available for all these forces; but, for the purposes of calculation, I will assume that they are so allotted:—

Bengal.

For 24 regiments of cavalry and 60 of infantry at 7 each	588
For the Guide Corps	9
For the Body-Guard	2
	599

Madras.

For 4 regiments of cavalry and 40 of infantry at 7 each	308
For 10 regiments of the Hyderabad Contingent at 4 each	40
Body-Guard	2
	350

Bombay.

For 7 regiments of cavalry and 30 of infantry at 7 each	259
Central India Horse	13
Deolee and Erinpoora Forces	6
Other infantry corps	13
Body-Guard	1
	292

6. This gives a total of 1,241 officers required for regimental duty, and if we add to this 20 per cent. for officers on furlough, whose places under existing rules are filled up, we shall have 248 more, or a total of 1,489, that is, 719 in Bengal, 420 in Madras, and 350 in Bombay.

7. For purely military appointments such as command of brigades, officers of the Adjutant-General and Quartermaster-General's Departments, Brigade-Majors, Aides-de-Camps, Garrison Musketry, and Gymnastic Instruction Departments, &c., as a fair proportion of these will always be held by officers of British regiments, we may assume that on account of these departments, and a proportionate addition for those on furlough, 46 officers will be required in Bengal, 30 in Madras, and 28 in Bombay, bringing up the corps respectively to 765 Bengal, 450 Madras, and 378 Bombay.

8. For departments more or less of a civil character, but belonging to the army, as the Military Secretariat, Commissariat, Pay, Clothing, and Re-mount Departments, it may be estimated that Bengal requires, including 5 per cent. on furlough, 100 officers, Madras 52, and Bombay 46, bringing up the total to 865 Bengal, 502 Madras, and 424 Bombay, or for all India, 1,791.

9. Now there are some civil and political appointments which no doubt will continue to be furnished from the army, especially those of Cantonment Magistrate and political and frontier appointments. I think if the whole proportion of these are gradually reduced to about 20 per cent. on the number employed with the army or in its civil departments, and this, I think, is an outside limit, there would be 400, instead of 750 as at present, which should include officers on furlough. This would make a total of 2,191 officers, or 1,050 in Bengal, 619 in Madras, and 522 in Bombay.

10. This does not include officers with Colonels' allowances and the small number of general officers who have not yet obtained these allowances. Under existing regulations the number of these varies, and increase to them cannot be checked. Under the permanent arrangements of giving one colonel's allowance to every 28 officers, and allowing for there being always a certain number of general officers who, owing to the operation of brevets, have attained that rank without being entitled to colonels' allowances, there would be about 45 for Bengal, 26 for Madras, and 22 for Bombay, making a total of 1,095 officers for Bengal, 645 for Madras, and 544 in Bombay.

11. There would always, however, be some officers who would have fallen out of active employment from one cause or other. The number would not be large probably, but should be taken into account; and probably for this we may estimate roughly about 4 per cent.: we shall have a total for Bengal of 1,140 officers, Madras 670, Bombay 566, or for all India 2,376.

12. It seems to me that a total of 2,400 officers will meet all our requirements. This is less than the number we have now, including local officers, namely, 2,909, but as 220 of these are officers in receipt of colonel's allowances, or are general officers without colonels' allowances, instead of 93, the estimated final normal complement, we have really only 2,689 officers eligible for employment below these grades, or 289 in excess of my highest estimate of final requirements.

13. I may remark that I would propose to include in the 20 per cent. allowed to be withdrawn from the army all who were employed in the Department Public Works. With the corps of Royal Engineers to draw upon, and the increasing class of Civil Engineers, I think Staff Corps officers should only be taken for the Department of Public in rare cases, and where the officers were in possession of peculiar qualifications.

14. There is another point upon which my remarks in previous chapters require amplification; I allude to the return of officers from other employ to regiments, and on this head I would rule that no officer should be liable to be remanded to the army for misconduct or inefficiency after an absence of five years. No department takes an officer until it has made him undergo examinations and probation, and if after five years in a department he is declared to have become unfit for it, he should be placed on pension or half-pay and not thrown back on the army. Of course in all such cases the misconduct would have to be clearly proved or the unfitness must satisfactorily be established, and not only unfitness for a particular post but for any post in the department. Such cases of unfitness would now be rare under the searching system of tests to which officers are now subjected on entering departments, and under my proposal I think the department if it had found it had made a mistake in admitting a young officer who, on trial, proved not fitted for it, would be careful to dispense with him before he had served in it so long as to be ineligible to return to the army.

15. I think also that no civil department should take an officer unless it is prepared to give him inducements to remain in it throughout his career. To do this, all departments taking military officers should have a proportion of posts as well paid as the command of regiments, with a few equal to the command of brigades. Otherwise as good officers complete lengthened periods of service they become discontented. This evil exists now in the Police. In Civil departments *of the army* the regulations ensure a good officer rising to posts at least as well paid as those of combatant officers of equal standing; and this should be the case in all.

16. It does not occur to me to say anything more on the subject of British officers, and I think I have exhausted all that is to be said about Natives, and I will therefore conclude by giving some few data as to the relative cost of the armies.

I. *As to pay.*—The estimates of the current year show that the annual amount of pay of a Bengal infantry regiment is Rs. 1,51,244, of a Madras regiment, Rs. 1,70,535, and of a Bombay regiment Rs. 1,62,600. The strength in fighting men of each is identical, but there are recruit or pension boys in Madras and Bombay, and some other charges in excess of Bengal.

No comparison can well be drawn between the cost of the cavalry of Madras and that of the other presidencies, as they are on entirely different systems, and the Bengal cavalry corps have 36 men less than the Bombay regiments; but taking the whole corps of the Bengal and Bombay cavalry, we find that the average charge for pay all round in Bengal is about Rs. 535 per head

per annum, while that of the corps of the Bombay army averages Rs. 570. I exclude from this calculation two special corps, the Guide cavalry and the Aden troop.

II.—As respects compensation for dearness of provisions, the other Presidencies are far more expensive than Bengal, even though the Madras troops in Burmah receive no compensation as they are rationed entirely by the State. On the annual average of 11 years the Bengal army has received Rs. 9⅓ per head per annum for compensation, the Madras army Rs. 32 per head, and the Bombay army Rs. 31; but if we take last year, the Bengal average was under Rs. 3 per head, Madras about Rs. 27, and Bombay no less than Rs. 50. Also while the hutting-money estimated for 1875-76 for Bengal is under a rupee a head, it is more than Rs. 3 in Madras, and about Rs. 2 in Bombay.

It is unnecessary to go into more detail, but I think the fact is undeniable that, man for man, the Bengal soldier is, to a not inconsiderable extent, cheaper than the soldier of the other armies.

17. I would here take the opportunity of correcting an error in paragraph 23 of Chapter IV. I there said there were no Mahrattas in any army but that of Bombay. This is not strictly correct; for there are 433 Mahrattas in the Madras army.

H. W. N.

11/10/75.

Minute by the Hon. Major-General Sir H. W. Norman, K.C.B.

It having been decided that the foregoing note written by me on the 11th October last shall be converted into a Minute, and accompany the despatches regarding the Native army which are about to be sent to the Secretary of State, I only desire to remark in continuation that, having during the last few months, and especially in the last few weeks, taken part in many discussions with respect to the Native army, my views now coincide in every material point with those at which the Governor-General in Council has arrived, and that, having had the great advantage of spending a week at the recent Camp of Exercise at Delhi, I am more convinced than ever that it would be unwise in the highest degree to make any alteration of organization which would have the effect of lowering the present position and authority of the Native officers of the army of Bengal.

(Signed) H. W. Norman.

The 3rd March 1876.

Appendix A.

Office Notes.

Mode under which officers are first appointed to the Native Army.

One of the principles of organization laid down for the Native army in 1861, was to enlarge alike the responsibilities of the European and Native Commissioned Officers, entrusting the immediate command of troops and companies to the latter, and confining the former to duties of a more important character, such as the command of regiments, of squadrons of cavalry, or of wings of infantry, and to the regimental staff appointments, with a small proportion in reserve for these duties, or in preparation to succeed to them in each corps.

It was therefore deemed necessary to secure that the European officers when appointed should be already acquainted with their duty, and with the Native language, so as to be able at once to be of use. It was also deemed necessary to have officers whose qualifications from the first were likely to command the respect of the Native soldiers, and who willingly attached themselves to a branch of the service which some officers would rather not join.

After some discussion, rules were laid down for the appointment of officers, it being necessary to premise that all appointments took place to the Staff Corps as well as to a Native regiment, it being intended that the whole Native army should eventually be officered from the Staff Corps. The rules, which, with one exception, noted below, are still in force, were as follows:—

No officer could join who had not served three years in the British army, of which two must have been with a regiment in India. This period was reduced in 1868 to two years with a regiment, of which one year must have been in India.

The candidate was required to have passed in the Native languages, and had to produce a certificate from his commanding officer that he had attained such a knowledge of his duty in all its branches as to qualify him for the command of a troop or company in all situations, and that he possessed a fair knowledge of the Articles of War, Queen's Regulations, and the Military Regulations of the presidency in which he was serving, as well as a general acquaintance with the organization and nature of the duties of all branches of the army serving in his Presidency.

The commanding officer had further to certify that the candidate had been attentive to his duty, and that his conduct had been in all respects unexceptionable.

The regimental surgeon had to certify that the officer was in good bodily health, and apparently well capable of undergoing the vicissitudes of service in India. In the case of a candidate for the cavalry, the applicant had further to produce satisfactory evidence of his aptitude for riding.

Having produced these testimonials of qualification, any officer of less than seven years' service may be appointed to a Native regiment as a probationer, if there is a vacancy, and if the Commander-in-Chief and Government please. After selection, the officer must serve one year with a Native regiment as a probationer, and during that year the commanding officer may at any time represent that the probationer is from temper or other cause not fitted for service with Native troops, and if the Commander-in-Chief is satisfied with the reasons assigned, he will be sent back to his regiment.

If no such objection is raised or admitted, the officer at the end of his probation has to appear before a committee consisting of the general officer commanding the division or district, and two commandants and one commandant and one second in command of Native regiments. This committee has to report on the candidate's qualifications in the following particulars:

I. Knowledge of the Native Articles of War and the military regulations of the Presidency, particularly of all the latter which affect Native troops. This knowledge is to be tested by a somewhat searching examination consisting of not less than fifty questions and answers.

II. Knowledge of the system pursued in the Native army, and especially in the regiment to which the candidate has been attached, as to the mode of dealing with offences, complaints and petitions from the men. The manner in which rosters for furlough and guard are kept, the deductions usually made from the men's pay for half-mounting or other purposes, and the system of accounts followed in the corps, together with an acquaintance with the the forms in use.

III. Knowledge of every article of equipment used in the corps, their usual or fixed cost, mode of carrying them, &c.

IV. Ability to act as adjutant on parade, with a knowledge of reconnoitring and out-post duty, and ability to write a report of a reconnoissance.

The committee after giving its opinion on all these points, has to declare whether it does or does not consider the officer qualified for permanent employ with Native troops, and the report has to be approved by the Commander-in-Chief and the Government before the officer is permanently appointed.

If the officer is in the cavalry, the committee has in addition to the foregoing to report on his knowledge of mounted drill, the system under which horses are obtained, the districts from which they come, with their prevailing defects and good qualities, prices, &c. The officer has also to show himself acquainted with the system of stable management in the corps, and he is required to prove that he has some general knowledge of farriery and of the diseases and injuries to which horses are liable, as well as their treatment.

I will now contrast with the foregoing the system under which direct appointments have been or might be made to Native regiments.

By the old plan, prior to the amalgamation of the armies and the introduction of the new system, a young gentleman received at his friend's solicitation a cadetship, and either went to Addiscombe, and if he there failed to pass an examination for the artillery or engineers, came out to the infantry, or, in the majority of cases, was, without going to Addiscombe, and after an almost nominal examination, appointed direct to the Native cavalry or infantry.

If direct appointments were made hereafter, I presume they would be won by open competition followed by a course at a military college, but I confess I am at a loss to see how selections would conveniently be made for the Native army from among those who thus had passed for commissions. Of course if officers were directly appointed to the Native army, they would receive no higher rank or higher pay than officers appointed to British regiments, and it seems to me that there would be many objections to having separate competitions for British and Native troops, while if one competition examination took place for both armies, I conceive that there would be a difficulty in any mode of arranging which of the successful candidates should go to the British, and which to the Native army. It would be alike objectionable to send the worst or the best to the Native army, while to leave it to the candidates to choose the branch to which they would go according to their place in the list, and as far as vacancies existed, would certainly not be a convenient plan, and might force some into a branch of the service for which they had no taste.

Apart from these difficulties, the present plan secures, if honestly carried out, the following advantages.

No officer ever is appointed to a Native regiment save at his own desire, and after a certain amount of service in India and when he must have reached a time of life at which he may be reasonably supposed to know his own mind, and after he has had a good opportunity of appreciating the advantages or disadvantages of the career on which he is entering.

He must have proved himself to be well conducted and attentive to his duties, and he must be a well-instructed officer, and must understand the Native languages.

He must after having had a certain trial of Indian service be believed to be capable of standing the climate.

And finally he must have served satisfactorily for a year with a Native corps, during which time, if he finds he has made a mistake, he can leave it, while if he does not seem suited to the

Native army, he can and always should be remanded to the British service. During this year he is required to have gained a complete acquaintance with the system and duties of a Native regiment.

All the above is added to all that is required of an officer prior to obtaining a commission in the British army, and I doubt if so great a prospect of practical efficiency is looked for prior to appointment to regiments in any army in the world. It is however quite necessary to exact these qualifications from those who hold such important positions as are now assigned to British officers with Native corps.

Now let us consider what are the objections raised to the present system of obtaining officers.

The first objection raised was one that was for a time urged with great pertinacity,. and was to the effect that candidates would not be forthcoming. Facts have removed this objection, for, as I always anticipated, the difficulty now is just the opposite, and the number of candidates is so in excess of vacancies as to be most embarrassing.

The next objection is that the best officers may not or do not come forward. This is of course a difficult objection to disprove; but it is quite certain that whether the *best* officers will enter the Native army or not, it is quite certain that no bad or incompetent or unwilling officer would ever be appointed if rules are attended to. As a matter of fact, I believe the officers transferred have, as a rule, been good, but any tendency on the part of officers commanding British regiments to be easy in giving the certificates required of them should be strongly checked.

A third objection is that service with a British regiment tends to make an officer look down on Natives. This, if true, might perhaps hinder some officers from joining Native regiments, but it certainly has not had that effect to any inconvenient extent. I think, however, that I could bring forward numerous instances of admirable officers of Native troops who originally served, and some of them for many years, with British regiments, before they had to do with Native soldiers. I would instance Fisher, Daly, Hodson, Macpherson, Barter, Thelwall, and others, who, leaving British regiments, have been most efficient and respected officers of Native corps, and I could name many officers who have more recently joined the Native army from British corps, who bid fair to be worthy successors of those I have just instanced. If there is any doubt in this matter, the fault must rest with the commanding officers of Native regiments with which probationers do duty, and who are specially charged with the duty of satisfying themselves that the probationer's temper and general habits are such as to render him an efficient officer of Native troops. As the probationer will often eventually be permanently attached to the same regiment, the commanding officer has a strong inducement to do this duty well, but if it is not attended to, which I have no reason to believe, attention should be stringently called to the omission.

A fourth objection is that, though candidates are obtained under this system, they only enter Native regiments in order to leave them. I would reply to this, that their leaving Native regiments afterwards depends on others, and not on their own will. No doubt this class of officers will always be drawn upon for civil and staff employment, but appointments to the former are becoming more restricted, and the latter are not very numerous. As, however, the officer's place is filled up when he leaves, I do not think any serious injury is done to regiments by the occasional withdrawal of an officer. As some misapprehension exists as to the large number of officers who have entered the Staff Corps and then gone into civil employ, I annex a statement which shows that more than two-thirds of the officers, who, during the last 12 years have entered the Staff Corps from the British army, are still serving with Native regiments, while several of the remainder are in departments connected with the army, where their double experience of European and Native troops renders them very valuable. The difficulty, however, so far as it is a difficulty, is one which would equally exist under any other way of appointing officers to Native regiments, and, will be further dealt with in a separate memorandum; but at present three-fourths of all officers who have joined the Staff Corps from British regiments are in employment properly belonging to military officers, and of these 318 officers all but 33 are borne on the rolls of Native regiments.

The last objection I have heard is that it is detrimental to the welfare of British regiments to lose some of their best young officers. This it will be observed is to some extent the opposite of the second objection ; but as the withdrawal of three young officers in every two years from each regiment of cavalry or infantry or brigade of artillery would amply suffice to meet the demand, I do not think this objection has much force.

I think I have summed up all that is to be said on this subject of first appointments to the Native army. With a system giving power and responsibility to all European officers of Native regiments, I think the present mode of appointment is preferable to any plan of direct appointments, though possibly improvements may from time to time suggest themselves in matters of detail. If we ever reverted to a system by which Native regiments were to have a full complement of captains and subalterns, or even 25 officers per regiment, as we had in 1857, of course we could not look to get officers qualified as those now appointed are. It would perhaps be impossible to attract them under such circumstances, and we might have to revert to direct appointments.

Having myself closely and anxiously watched the present system from its commencement, I do not advocate any change in the mode in which first appointments are made to the Native army as now organized, nor am I prepared to advocate any such increase of the establishment of European officers of Native regiments as would render it necessary to revert to a system of direct appointments.

1st March 1873. (Signed) H. W. Norman.

Appendix.

DISTRIBUTION of Officers in the three Staff Corps who have entered from the British Service since 1861, taken from the Army Lists of 1st January 1873.

Holding appointments in Native regiments - - -	282
In military staff employ - - - - -	13
In administrative appointments connected with the army -	20
In Public Works Department - - - - -	23
In Survey Department - - - - - -	18
In civil or political appointments or police - - -	58
Unemployed* - - - - - - - -	12
	426†

Of 41 probationers for the Staff Corps in addition to the above, 35 are with Native regiments, 4 are in the Public Works Department, and 2 in the Survey.

1st March 1873. H. W. N.

APPENDIX B.

OFFICE NOTES.

Memorandum on the Staff Corps.

As a good deal that is incorrect, a good deal that is exaggerated, and still more that is written under misapprehensions has lately been published regarding the Staff Corps, I have worked out certain information regarding it which perhaps the Viceroy may like to see.

It is to be recollected that all officers who held permanent staff or civil appointments in February 1861, were allowed to join the Staff Corps. Subsequently in 1866, all officers of the Indian Army were allowed to do the same.

The admission of all these officers was quite apart from the permanent system and organization of the corps. These officers, except a few officers of the British army in staff employ who were allowed to join the Staff Corps on its formation, were already in the Indian army, and were eligible (if qualified) for every sort of employment which is open to the officers of the army. Whether a Staff Corps was formed or not, they were equally in the service and pay of Government, and their transfer to the Staff Corps gave them no greater right to any sort of employment than they had previously. It is hardly necessary therefore to enter into details as to the employment and position of these officers. Their number is steadily decreasing, and those who are unemployed at present are not numerous.

All that really was secured to them by entering the Staff Corps was a fixed rate of promotion, a rate which at the time was and is believed still to be below the average of British army, and which cannot be called at all rapid. Considering that the large majority of the officers are in performance of duties far more responsible than those which fall to the lot of officers of other armies, and considering, too, that all service is foreign service, 12 years in which to become a captain, 20 years for succession to the rank of major, and 26 to that of lieutenant-colonel, cannot be considered very speedy advancement.

The grant of colonel's allowances after 12 years' service as a lieutenant-colonel was no doubt a very great advantage, but this was no part of the original system, and has no application to any officer who has entered the Staff Corps since 1866.

With a large excess of officers coming from the Indian army into the Staff Corps, many of whom were of very long standing, and with a cessation of admissions for a considerable time, the natural result followed of having a most unfortunate preponderance of old officers, a preponderance greatly increased by the diminished number of retirements, owing to the strong inducement held out to officers to remain in the army until they had obtained colonels' allowances.

To these circumstances, and not to first admissions, therefore is due this large proportion of old to young officers, but under the Staff Corps rules no doubt these older officers have obtained superior rank. If these officers held lower ranks, no doubt there would be a smaller expenditure of money, but there would be much discontent, and probably much agitation to procure promotion, while we should have very old officers holding very inferior rank. If indeed the three Staff Corps could now be re-formed with the same relative proportion of each grade as obtained in Native infantry regiments in 1857, and if we excluded as supernumeraries the general officers without colonel's allowances, as well as probationers, we should have a body equal to about 85 cadres of the old regiments, and we should not have a lieutenant-colonel who had not served more than 34 years, no major who had not served more than 32 years, and no captain who had not served more than 24 years, while 924 subalterns would be of more than 15 years' service, and

* Of these, eight are in Europe, and hold no substantive appointment, and three are attached to Native regiments as supernumeraries.

† A very few officers are included in this list, who were originally Indian officers, but went over with new line regiments to the British army in 1862, and have subsequently entered the Staff Corps, but no officers who joined from the cadres of the European cavalry or infantry are included, or any of the Indian artilleries, except perhaps two or three in Bombay, who owing to incompleteness in the army list, I am not certain were or were not originally in the Bombay artillery.

H. W. N.

360, or more than a fourth of the whole, would be of more than 20 years' service. This, too, is just after some 90 superior officers have retired in one batch. It is needless to say that no such state of affairs would have been tolerated, and that some means would have been adopted for accelerating promotion, which perhaps might have been less simple while quite as costly as the temporary excess of the superior ranks in the Staff Corps.

Practically, then, in considering how far the Staff Corps is successful in providing a body of officers to fill the various employments hitherto filled by military officers, we can only usefully look to the body of officers who entered from the British army.

In these I include the few officers of British regiments who having obtained permanent appointments prior to 1861, elected in that year to enter the Staff Corps. I include also a few officers who originally belonged to the Indian army, but who went over to the British army with the new line regiments, and after a time came into the Staff Corps, but I include no officer who went from the cadres of the Indian artillery, engineers, or European regiments.

I find then by the army lists of the 1st January 1875, that 517 officers have entered the three Staff Corps from the British army, including probationers. Divided into ranks, they now stand as follows:—

——	Bengal.	Madras.	Bombay.	Total.
Lieutenant-Colonels	8	2	—	10
Majors	14	2	—	16
Captains	93	11	24	128
Lieutenants	183	33	82	298
Lieutenants, Probationers	45	6	14	65
	343	54	120	517

It will be several years before there can be any large preponderance of officers of the highest ranks in this body, and if the calculations made by General Hannyngton as to the average mortality of officers is correct, and if a moderate flow of retirements is kept up, it is pretty certain that there can never be any inconvenient preponderance in this direction, unless, indeed, under some idea of reduction, admissions are stopped and no special arrangement made to induce retirements. A very small number of these officers, it must be recollected, come under the rule by which colonel's allowances are claimable after a fixed period of service.

The particular way in which these officers are employed is shown in the following table:—

Attached to Native army	370
Army staff	14
Departments of army administration	19
Public works	27
Survey	17
Civil and Political	56
Police	9
General (or garrison) duty	1
Furlough without appointments	4
Total	517

The creation of the Staff Corps was not accompanied by any determination to confine soldiers solely to military duties. There is nothing in the constitution of the Staff Corps to prevent this being done if thought proper, but the corps was formed expressly "to provide a body of officers " for our service in India by whom various offices and appointments, hitherto held by officers " borne on the strength of the several corps or regiments of our forces in India, shall in future " be held."

This intention appears to have been fully carried out, and I think, while the corps does provide such officers as are required by the civil administration, it is not fair to assert, as is sometimes done, that the Staff Corps officers are hardly a military body. It will be seen that 399 out of 517 officers are with troops or in army appointments. Those in the Survey and Public Works, 44 in number, are in exactly the same sort of employment as the bulk of officers of the Royal Engineers, and the officers in the Survey Department especially are often called on to perform duties, both on field service and on frontiers, very appropriate for soldiers, and calculated to be of great use to themselves professionally, as well as to the successful conduct of future military operations.

Of the 65 in civil, political, or police employment, some are magistrates of cantonments, in which posts it is most desirable to have military men; others are employed in rough frontier districts, and in these and in many other so-called civil or political appointments, an officer, though perhaps for the time losing some knowledge of drill, can hardly fail to acquire experience and habits that may perhaps make him eventually a better commander than many officers whose experience is limited to purely regimental duty in time of peace.

Anyhow, I think we may fairly contend that the system of obtaining recruits for the Staff Corps from British regiments has succeeded in giving us a sufficient body of young officers to fill the various appointments, and that the corps is at least as distinctly a military body as the old East India Company's officers.

As regards the quality and fitness of the officers who have entered, I shall prepare a separate note.

I may remark that in addition to the 517 officers now in the Staff Corps who came from British regiments, three others who have entered the corps at different periods have been transferred to the half-pay list.

(Signed) H. W. NORMAN.

The 30th January 1875.

APPENDIX C.

NOTE on representation from Madras on Paucity of European Officers for the Army of that Presidency, and on the proposals of his Excellency the Viceroy to modify the System of First Appointments to the Staff Corps.

It is to be recollected that the deficiency complained of does not apply to the total number of officers in the Madras army, which is ample for all military requirements of the Presidency, but to the circumstance that a very large proportion of officers are employed away from regiments in appointments of the most varied nature and in situations remote from the Madras Presidency, and also to the circumstance that the bulk of the officers borne on the rolls of the Madras army are too high in rank and too old in years for any but superior appointments.

As regards actual numbers, there were, on the 1st April, 792 officers in the Madras cavalry and infantry and Staff Corps. This is exclusive of general officers or of officers with colonel's allowances.

Now the Madras army consists of 44 Native regiments, and allowing the authorised complement of seven officers per regiment in India, 308 officers are required. Adding to this for furlough absentees 20 per cent. on the whole body of 792, we have 159. This gives a total of 467 officers, leaving disposable no less than 325 (or 17 more than are required for the whole of the regimental establishments) for staff, civil, or miscellaneous employment. This latter proportion would be admitted by every one, I suppose, to be excessive, and 660 would be, in my opinion, a fair estimate for the requirements of Madras. This would allow of 308 officers for the 44 regiments of the Madras army, 20 per cent. on furlough or 132, 30 per cent. or 198 for all descriptions of staff, civil, and other detached employment, whether in or out of Madras, and including officers with the Hyderabad Contingent, Punjab Frontier Force, &c., and 22 or between 3 and 4 per cent. doing general duty or awaiting employment.

Taking the existing number of 792 officers and allowing 198 for miscellaneous employments, 159 (or 20 per cent.) for furlough, and 22 for general duty and awaiting employment, there are 413 left, which would give 9 officers to 27 regiments and 10 to the remaining 17 regiments of the Madras army.

Looking only for the present to numbers, how does the deficiency arise; and from this point of view it is clear that it is owing to an excessive employment of officers of the Madras army in staff, civil, or detached situations. Instead of 198, which I have assumed as an ample proportion of officers for these appointments, there are, as nearly as I can make out from the last Army List, no less than 360 officers of the Madras army in detached employment. In fact, it would seem that while in the Madras army 360 officers out of 792, or not much less than half, are detached from the regiments of that army, there are only 624 officers so detached in the Bengal and Bombay armies combined out of 1,938 officers, or considerably less than a third, and of the Madras absentees more than half (192) are in appointments of a purely civil nature, under which head I do not include the Department of Public Works. Of those in these civil employments 98 are captains and subalterns.

It will thus be seen that it has been the action of the Supreme and Local Governments that has reduced the number of officers with the Madras army to its present low ebb. This action may have been proper, or even necessary; but it seems to be high time that some limit should be put to the number of officers taken from professional duties, especially in the Presidency of Madras. It will be difficult to arrange for recruitment if officers are taken apparently without limit for duties unconnected with the army, and it will further be impossible to keep up a proper military spirit in a body of officers, in which, instead of a small proportion being specially selected for civil employ, in positions or in districts where soldiers are required for such duties, large numbers are to be taken for civil positions of the most ordinary description, and which, would be appropriately filled by civilians or uncovenanted civil officers.

While, however, the present number of officers borne on the rolls of the Madras army is more than ample for all military purposes, the enormous preponderance of old officers would, under any distribution of those officers, leave the army inefficiently officered. In fact, the stream of retirements for many years, and until the Secretary of State recently allowed special inducements to be given for retirement, was far too slow, and the appointment of young officers far too few. Indeed, for several years both retirements and first appointments practically ceased, and the result naturally now is an army of old officers. Even when appointments at the bottom recommenced, they never approached in comparative numbers to the appointments in Bengal and Bombay.

Attached to the note by the Commander-in-Chief are statements of admissions to the various Staff Corps during certain periods.

Returns of the same nature from Madras and Bombay are also put up. These two do not quite agree with that prepared by Colonel Dillon, but the discrepancy is of little importance. It may be useful, however, for me to annex a memorandum I prepared last January on the subject of admissions to the Staff Corps. The figures there given are, I believe, correct. In addition to the 517 officers there returned as having entered the Staff Corps from British regiments, there have been subsequent admissions which bring up the numbers to 363 in Bengal, 55 in Madras, and 122

in Bombay. If in each Presidency the officers had entered in proportion to the number of regiments of British cavalry and infantry, and brigades of Royal Artillery in those Presidencies respectively, the result would have been as nearly as possible 333 in Bengal, 111 in Madras, and 96 in Bombay; that is, Madras has received 56 less than its share of 111, which is made up by an excess of 30 in Bengal and 26 in Bombay. If then a fair proportion of officers had joined the Madras Staff Corps, and more moderation had been exercised in putting military officers into civil situations, it is doubtful if any difficulty would have been experienced.

For the future, with a limitation as I have already proposed for Madras, and which is also, though in a less degree, required for Bengal and Bombay, the drain on British regiments for the Staff Corps would not be excessive. With an establishment for Madras of 650 officers, the annual appointment of 26, or at the rate of four per cent., would probably suffice; and as there are 11 regiments of British cavalry and infantry, and four brigades of artillery (minus two batteries) in Madras, the admission of $1\frac{9}{15}$ per annum from each regiment and brigade in the Presidency would probably supply all demands.

His Excellency the Commander-in-Chief in his note states that the drain for the Staff Corps, if spread over all regiments, would amount to less than 1 per cent. I do not exactly know on what basis this calculation is made. At present we have no data to go upon; for, on the one hand, numerous vacancies that hereafter must be filled by appointments of young officers to the Staff Corps, have up to the present day been in many cases provided for by the employment of spare officers of the old Indian army, and on the other hand, military officers have been put into situations to provide them with employment, which situations, it is reasonable to suppose, will not hereafter be supplied from the army. Under these circumstances it is true that during a series of years only 540 officers have entered the Staff Corps, or about $7\frac{1}{2}$ per regiment and brigade of artillery; but assuming that the eventual requirements of all India will be provided for by a body of 2,600 officers, and that the vacancies are at the rate of four per cent. per annum, we should require 104 young officers annually from 73 British regiments and brigades, or, to give a margin, say three from each corps every two years, or $109\frac{1}{2}$ per annum.

This is not a very excessive demand, but I fear that the disinclination to enter the Madras Staff Corps, which has hitherto apparently existed, will not readily disappear.

Without going very specifically into the causes of the disinclination, it may be sufficient to notice that there is hardly as good a chance of rising to high posts in Madras as in Bengal; not so much prospect of distinction in the field, judging by the experience of the last 30 years, as in Bengal or Bombay; and that while many of the senior officers in Bengal, if not in Bombay, approve heartily of the system of entrusting troops and companies to Native officers, and various corps of these armies have earned much credit under the new organization, the Madras officers have, it is understood, with hardly an exception, disapproved of the change, and their army has had no recent opportunity of field service.

Hence, it will be readily understood that officers of British regiments do not, as a rule, feel much inducement to enter the Madras corps, and it may be necessary to devise means to meet the difficulty, as I have before suggested, either by only allowing officers serving in Madras to enter the Staff Corps of that Presidency, or by admitting candidates for the three Staff Corps generally, and then posting them to the corps which has most need of them.

As to the merits of the present system of obtaining officers, I entirely agree with the Commander-in-Chief. I have often considered and discussed the subject, but can add little to what his Excellency has said in his note of the 22nd instant. I would, however, add that having carefully inquired into the matter, I feel assured that the quality of the officers obtained under the present system is most excellent. They have, after a period of service with British regiments, to produce certificates of being good officers, of unexceptionable conduct, and of good health, and of possessing constitutions calculated to stand this climate, and they must have passed the higher standard examination in the Native languages. They have then to serve for a year on probation with a Native corps, have thoroughly to master the system and rules of the Native army, and have to satisfy the commanding officer that they are likely to turn out good officers of Native troops. They also, during this period, can, without difficulty or reproach, revert to their corps if they find service with Native troops distasteful. I have carefully examined the confidential reports of the several Native armies for the last four years, and have found that these officers are almost invariably very well reported on, several being officers of high talent. As far as I can ascertain they have given equal satisfaction in all departments of the service, civil and military, and several whom I have had personally and officially to deal with have been of the highest use from their perfect knowledge of the system of both British and Native corps.

I believe the conduct of all these officers has been admirable, and I cannot gather that one has ever been tried by court-martial.

One great advantage is that they join Native regiments at their own request, acquainted with their duty and knowing the language, in fact, capable of taking their proper position at once as British officers, superior in position to all the Natives in the corps. I cannot think this advantage will be secured even with the system proposed by the Viceroy, while any plans of direct appointments must certainly fail to secure these benefits.

There are two objections that I hear raised: the first, that it is unjust to British regiments to saddle them with officers whom they have to train and then lose. There is some force in this, but, after all, the trouble and the loss of officers is not very great, probably not more than the loss of officers retiring from regiments at home under the purchase system, or perhaps than even now retire, for many gentlemen enter crack corps for a time, and then leave for ever. In 1874 I see from Hart's Army List that 146 subalterns, besides many young captains resigned their commissions or retired from the service. 104 subalterns a year from 73 corps on the Indian establishment is not much after all, and even under the system proposed by his Excellency the Viceroy, a good part of the grievance complained of would remain.

I would take this opportunity of remarking that an officer is considered in excess to the establishment of his regiment directly he becomes a probationer, and on the intimation reaching England, his place is supplied. Of course there is some delay in obtaining the new officer, but nothing like that which would arise if no successor was appointed until the candidate for the Staff Corps had completed his probation, which I believe some persons think is the system.

The next objection is that the mere fact of being in a British regiment disinclines officers to serve with Natives.

There is some foundation of truth in this also; but can we be at all certain that officers joining direct or after a year with a British regiment would *willingly* take service with Natives? Certainly many would not. We have now at least the partial guarantee that the officer has applied to join a Native regiment after a period of service in India which must have enabled him to form some judgment of his own as to the Native army. He may, it is true, in cases require pressure from his friends before applying, but as he usually has a liberal allowance with British regiments, though probably his parents can only afford this for a while, it is hardly to be wondered at that some should hesitate to leave a comfortable home in a British corps to qualify themselves, with some trouble, for an Indian career in the Staff Corps. Ascertain the feelings of those, however, who have left their regiments for two or three years, and who then understand their position and prospects, and I suspect few would be found willing to revert to their old corps, unless indeed they are very well off, and those who are very well off can hardly be tempted to take up permanent Indian service under any circumstances.

I think, moreover, that officers appointed directly for service in the Native army would have a feeling of inferiority to those appointed to Her Majesty's British army. In the time of the Company their army had a prestige of its own, and many valuable and exclusive privileges. The cadet, therefore, never altogether felt himself in an inferior position to the ensign of the British corps. I think it would be different now, and that the sub-lieutenant gazetted to the Native Army would feel himself in a decidedly inferior position to the one gazetted to a British corps. No such inferiority is felt by an officer who has been in a British regiment, and voluntarily qualifies for the Staff Corps. It would be difficult, too, to give to a young inexperienced officer joining a Native corps the position and pay which now make these appointments tempting, and which are not inappropriate for officers who have served for more than an average of three years before joining, and who have qualified themselves for the particular service to which they are appointed.

I see that his Excellency the Viceroy proposes to continue to fill up half the vacancies by appointments made under the present system. I think there would be some practical difficulties in having two methods of supply. When an officer joins a Native regiment, he should feel some certainty as to his prospects when vacancies arise—always supposing he is thoroughly efficient; but it would be impossible to bring in the older class of officers from British regiments in inferior positions to those held by officers who had joined direct and were their juniors in the army, while it would be deemed a hardship for outsiders to be brought straight from British regiments to Native corps over the heads of officers who, though junior to the officer brought in, might have been two or three years in the corps, and quite qualified for advancement. I do not say that some rule might not be devised partially to meet this difficulty, but it would be almost impossible to get rid of it altogether.

I have now given my views as to the present system being better than that proposed, but if officers will not enter the Staff Corps, we may have to resort to what I venture to consider a less eligible mode of supply.

As, however, I stated in my note of the 3rd May 1875, I think we are dealing with this question a little prematurely. We are now collecting information on various points connected with the Native army, and one of the points to be settled is that of the system of officering (not nearly the first recruitment of officers) for the Native army. The question dealt with in these notes may have its aspect entirely altered by the decision arrived at on the whole system, and I do not see how the present question can be decided without the other. I do not advocate a material change in the system, but others may, and a change may take place which would render the appointment of officers direct almost a matter of course. I therefore think we are hardly now in a position to recommend any measures to the Secretary of State in the direction indicated by the Viceroy, though no doubt the notes now written will be valuable when we are dealing with the more general question, the papers connected with which are rapidly approaching completion.

28/6/75. H. W. N.

Appendix D.

Office Notes (Confidential).

Note on Organization of Native Regiments.

There is a general impression that the organization of regiments of Native infantry may be improved. I do not know that this feeling extends so much to the cavalry branch of the service, speaking at all events of Bengal, and perhaps of Bombay.

I am not aware that there is really any serious defect even in the organization of the infantry, always assuming that Native officers are entrusted with the command of companies; but in this case I think the whole status of the Native officers requires to be raised, in order to make the command of a company a desirable position for a Native gentleman, just as a ressaldarship in the cavalry now is.

I also think it is desirable that the infantry regiments should be so organized as to admit, without serious expense, of European officers being placed in command of companies in regiments, the

composition of which or any other cause rendered it undesirable to employ Native officers in the above capacity.

I think both objects are to be met without any violent change, by having regiments of four companies, each of the present strength of two companies.

By this a saving could be effected, which in the one case would more than provide for the extra pay I would propose for the Native officers commanding companies, and in the other would go far towards paying for extra European officers or improving the condition of the recruit and sepoy.

Taking first a Bengal infantry regiment in its Native grades, and excluding all establishments which would remain the same, whether a corps had eight companies of 75 sepoys, or four of 150, and excluding all reference to good-conduct pay, which would be the same in both cases, I give in juxtaposition the present and proposed establishments, with their pay:—

Present Establishment.

No.	Rank.	Rs. per mensem.	Total. Rs.
2	Subadars	100	200 0
2	„	80	160 0
4	„	67	268 0
4	Jemadars	35	140 0
4	„	30	120 0
40	Havildars	14	560 0
40	Naicks	12	480 0
16	Drummers	7	112 0
600	Sepoys	7	4,200 0
712			6,240 0

Add Staff Salaries.

Subadar-Major	25 0
Drill Havildar	5 0
Drill Naick	2 8
Eight Colour Havildars	16 0
Eight Pay Havildars	40 0
Drum and Fife Majors	10 0
Grand total	6,338 8

or Rs. 76,062 0 0 per annum.

Proposed Establishment.

No.	Rank.	Rs. per mensem.	Total. Rs.
2	Subadars	100 0	200 0
2	„	80 0	160 0
4	Jemadars	35 0	140 0
4	„	30 0	120 0
1	Native Adjutant (Jemadar)	50 0	50 0
1	Drill Havildar	20 0	20 0
1	Drill Naick	14 8	14 8
2	Drum and Fife Majors	12 0	24 0
28	Havildars	14 0	392 0
32	Naicks	12 0	384 0
8	Drummers	7 0	56 0
600	Sepoys	7 0	4,200 0
685			5,760 8

Add Staff Salaries.

1	Subadar-Major	50 0
4	Commanders of Companies, @ Rs. 50	200 0
4	Colour Havildars	8 0
4	Pay Havildars @ Rs. 7 8	30 0
		6,048 8

or Rs. 72,582 0 0 per annum.

saving by new proposal Rs. 3,480 0 0 per annum.

It will be seen that I have given a Native adjutant to each regiment, as is now the case in Madras and Bombay; that I have taken the non-commissioned staff off the strength of companies; that I have doubled the allowance to the subadar-major, who is the most important native in a corps; that in reducing the number of subadars I have dispensed with those who have least pay, and that to Native officers commanding companies I have allotted Rs. 50 per mensem for each company.

I have added 50 per cent. to the staff pay of pay havildars, in consideration of the larger size of companies.

This organization provides, as respects European officers, for any one of four systems, whichever may be thought most suitable for the description of soldiers or particular way in which the corps is to be employed.

These systems might be the following:—

1. Something like the old irregular system with a European commandant, a second in command, and adjutant, or even without a second in command.
2. The present system of commandant, wing officers, adjutant, and quartermaster, and with or without wing subalterns.
3. A system by which there would be European officers commanding companies, with a commandant, adjutant, and quartermaster, and, if desired, a second in command.
4. An addition to the preceding system of a subaltern or even two to each company, so as to ensure the actual presence always with each company of a European officer.

In all* these four cases a well-paid subadar-major would be ensured, while in the cases where the companies were entrusted to subadars, they would be in receipt of a substantial addition to their pay.

If desired to apply the saving to the benefit of the Native soldier, I would suggest a free kit to the recruit. I believe 50 recruits is about a fair average per regiment annually, and Rs. 30 each would cover the cost of a full kit, including greatcoat. This would absorb Rs. 1,500. All the remaining non-commissioned officers, drummers, and sepoys might receive an allowance of

* If European officers commanded companies, perhaps the second jemadar in each company might be dispensed with. He certainly might be dispensed with if there was a subaltern to each company.

Rs. 3 0 0 per annum in aid of their half-mounting. This would, estimating the number exclusive of recruits at 620, cost Rs. 1,860 per annum. This would give a saving of Rs. 120 per annum on the whole in each corps.

Though the number of non-commissioned officers in each corps is reduced by 12 havildars and 8 naicks, each company will still have the large number of 1 colour havildar, 6 havildars, and 8 naicks.

18/7/73. (Signed H. W. N.

Appendix E.

Office Notes.

Note by Major-General Norman on the Reserve of Officers for the Indian Service.

The question has been raised as to what is the reserve of officers for the Indian service. This does not refer, as I apprehend, to the source of supply of officers for the Indian service, that is the Staff Corps, for this supply comes from the British army, and certainly, in Bengal, is ample, though the system is as yet in its infancy.

2. It is not probable that to complete vacancies in the various departments and corps, more than a hundred candidates will ever be required annually in the three Presidencies, and this number we have no reason to suppose will not be forthcoming. The difficulty in arranging the supply will be not as to numbers, but as to inducing a sufficient number of candidates to go to the two minor Presidencies, in which the chances of service and distinction are less than in Bengal. In fact, as long as there are three Staff Corps, and officers entering can choose their Presidency, Bengal will attract an unnecessary majority of candidates.

3. This, however, can at any time be met by posting candidates to Presidencies not according to their wishes, but according to the requirements of the service, or by forming the three Staff Corps into one, a measure which, owing to promotion being given solely according to length of service, could be carried out any day without altering the prospects of anyone.

4. However, it is not the supply, as I understand it, on which it is now desired that a note be prepared, but as to the reserve, that is the source from which casualties would be supplied in the event of a great war in which many officers were killed or wounded.

5. In treating of this subject, we must first observe that it is often the fashion to compare the number of officers now available with the number available in former days, regardless of the fact that the regimental systems are entirely different.

6. Before the Mutiny there were two systems in force; the regular and irregular. In the former the theory was that each troop or company was commanded by a European officer of more than two years' standing, and that thus a regiment, including the field and staff officers and the young subalterns not qualified for command of troops and companies, should not have less than 12 officers in the cavalry and 16 or 17 in the infantry present. This number was requisite according to the theory of the system, but it is well-known that these numbers were rarely present even on field service, and that as European officers often had command of two companies, and that the regimental staff commanded companies, subadars who, according to the theory, did not lead companies, had to do so.

7. However, taking the average present as 10 in cavalry and 12 in infantry, there was a European officer ordinarily present with the strength of regiments in 1856 for every 50 sabres in the cavalry and for every 95 men in the infantry; but this, of course, included young officers recently joined and at drill.

8. The other system in force prior to the Mutiny, and which was that of many regiments, was the pure irregular system, where regiments had but three European officers, a commandant, a second in command, and an adjutant, or one officer to, say, three hundred men in the infantry,* and to nearly two hundred in the cavalry. Some few of the irregular infantry regiments which had permanent outposts, had one or two additional officers, and two or three had a quartermaster as well as an adjutant, but, as a rule, they had but three officers each.

* Irregular infantry regiments varied in strength, but were usually weaker than regiments of the line.

9. Many of these regiments, especially cavalry and goorkha regiments, went on service and served through campaigns, like those of the Sutledge and Punjab, without any increase of officers; and, in fact, taking the greater strength of the regular corps of the ante-Mutiny days, and the large proportion of irregular corps with only three officers each, it seems to me doubtful if there was a larger proportion of European officers to strength actually available for duty with the whole Native army before the Mutiny than there is now.

10. Under the present system all corps of infantry in the armies of the three Presidencies have a uniform strength of officers and men, viz., 7 officers and 712 men in the infantry. All corps in the cavalry have also an establishment of 7 European officers, and the 19 regiments of Bengal cavalry have 457 sabres. The strength in Madras is somewhat less, and in the Bombay and the Punjab regiments somewhat larger; but, on the whole, we may say there is one European officer to every 100 infantry soldiers, and one to 65 cavalry; but then the troops and companies are avowedly commanded by Native officers. The present system does what it professes, viz., provides Native commanders for the troops and companies, and an ample number of field and Staff officers for the regiments. The old system rarely did what it was supposed to do, viz., provide European commanders for its troops or companies; so, bearing in mind that the present staff of regiments

is more than ample as a staff, a reserve was more necessary under the old system than it is at present.

11. Of course, I shall be told in answer to this that the present system is a bad one, and that Native officers are not competent to command troops or companies, but with this, I think, it is unnecessary now to deal.

12. The present system is based on the principle that Native officers are to exercise these commands. If it is deliberately thought they cannot do so, the system should be altered; but as the system stands (and I maintain it has successfully stood the test of some ten years' experience in peace and war), we have to deal with it as it stands, and to provide a reserve, not for the command of troops and companies as was necessary under the old regular system, but simply to maintain a proper staff of superior officers for regiments, the duties of European officers being now confined to mounted duties in the field, to command of regiments, wings, or squadrons, to that of adjutant and quartermaster, with a reserve with each regiment, independently of any general reserve, to supply vacancies in the higher grades, or to take occasional important commands or outposts of less than a wing or squadron.

13. In fact, under the old system, the reserve, such as it was, had to be drawn upon before a campaign commenced, in order to make a show of providing a sufficiency of commanders of companies; but now, if the system laid down is only frankly and fully accepted, no reserve is really required save to meet casualties after a campaign has commenced.

14. What the reserve was I have detailed in a memorandum submitted to the Secretary of State in March 1866, of which I annex an extract.* It cannot surely be considered to have been a satisfactory reserve; it was a reserve drawn upon at once, and it rarely answered, and when it did answer, only answered for a brief period, to maintain the principle of the old system, that is, to give officers for the staff duties and for each troop or company of the Native army.

* See appendix marked A.

15. As to the reserve under the new system, I would ask attention to another extract† from the same memorandum treating of the number and quality of that reserve.

† See appendix marked B.

16. But to this I would add that by telegraph now we could ensure the departure from England, within a few days of the necessity for their presence in India arising, of a portion of the officers on furlough, and it is not too much to say that, what with telegraph, steamers, and railways, fully ten or twelve per cent. of the whole of the officers of the Indian service, or half of those on furlough, at least that number being, I should say, in perfect health, say 250, would be at any point of our Indian Empire within from six weeks to three months of the time that matters seemed likely to be serious.

17. Can we want more reserve than that detailed in Appendix 2 and above? I think not, for what have been our causalties in former wars?

18. In the battle of Moodkee with the Body-Guard, two light cavalry regiments, one of irregular cavalry, and eight regular Native infantry regiments, three officers were killed, one dangerously, and four severely wounded.

At Ferozeshah, with the Body-Guard, three regiments of regular cavalry, two of irregular, and fourteen regiments of Native infantry, six officers were killed and ten severely wounded.

At Alliwal, with the Body-Guard, three regiments of regular cavalry, two of irregular, five regular regiments of Native infantry, and two Goorkha regiments, three officers were severely, and one dangerously wounded, and one killed.

And at Sabraon, with the Body-Guard, three regiments of regular cavalry, two and half of irregular cavalry, 10 regiments of regular infantry, and two Goorkha battalions, there were two officers killed and 12 severely wounded.

19. Thus there were in the whole Sutledge campaign, one of the most bloody and hard-fought campaigns of the present century in India,—12 officers of Native troops killed, two dangerously and 29 severely wounded, or 43 put really *hors de combat*; but as this includes the loss in every corps, and, as is always the case, few regiments were in all the actions, and some were never engaged at all and were only coming up in reserve, this represents the loss of European officers in the whole Native army of the Sutledge, or in the Body-Guard, seven regiments regular cavalry, five and half regiments of irregular cavalry, 26 regiments of regular infantry, and two Goorkha battalions, very little over *one officer* per *regiment*.

20. In the Punjab campaign under Lord Gough, that is, at Ramnuggur, Sadoolapore, Chillianwallah, and Goojerat, a total force engaged or in immediate reserve amounting in all to four regiments of regular cavalry, four of irregular cavalry, and 17 regiments of regular Native infantry had six officers killed, and 30 severely wounded, or about one and half officers per regiment.

21. In these campaigns it is to be recollected that the officers were more numerous as compared to men than they now would be; but as it may be alleged that officers would now have to expose themselves more, being all mounted, I will not press this argument; but I will maintain that if we had an arduous compaign with the unprecedented number of 50 Native regiments engaged in it, it would be very remarkable if our casualties, even with sickness added, ever reached the figure of a hundred; but if the casualties reached that figure, or twice that figure, or thrice that figure, we should be able to supply the drain.

If it got beyond that, I doubt there being many men left for whom officers would be needed.

22. The Mutiny is often urged as an instance of the danger of having few officers with regiments. The Mutiny, it is true, broke down the old system. If a regiment mutinied, it was rather an advantage than otherwise to have few officers murdered, but the regiments that were most actively and devotedly loyal were, with perhaps one exception, such as had originally

only three or four officers, as the Sirmoor battalion, Ferozepoore regiment, Guides, 1st Punjab infantry, &c.

23. In these corps, however, the casualties are said to have been so heavy that the unsoundness of a system of few officers was apparent. What is the truth? Doubtless, where but one or two Native regiments were present in one large army, and very freely used, the casualties were great; but after all, throughout the siege of Delhi, a force of corps or detachments of Native troops equal to nine and half regiments, all of whom were at the crowning event of the capture, had 11 officers killed and 14 severely and dangerously wounded, or something like two and half per regiment,—a very uncommon proportion; but we do not often see fighting like this in India, and it was a loss we should find no difficulty in replacing with so few regiments engaged. With more regiments, probably opposition would have been less and shorter.

24. Again, Umbeylah is instanced as a case where the new organization was tried and failed. This is simply not the fact. A reference to facts will show that the new organization was only ordered by Government in October 1863, actually after the assembly of the Umbeylah force. The Native corps that went to Umbeylah therefore were still on the old irregular system, with perhaps one or two extra subalterns attached. The system of having wings and squadrons commanded by responsible European officers had been in no way brought into play.

25. I would observe, however, that Umbeylah was a very severely contested campaign, and that we did what is always likely to lead to trouble, if not disaster, on the North-Western Frontier—advanced into the hills, and remained there inviting the attacks of warlike tribes.

26. But notwithstanding all this, what were the casualties in the Native troops which, I may observe, were very prominently put forward, and which constituted the large majority of the force? In the Guide Cavalry, and 11th Bengal Cavalry, which were up during the first few days and at the last advance, no European officer was killed or severely wounded. In the Native Infantry, of which seven regiments went up at first, two immediately followed, and three were added before the final operations took place, our losses were five officers killed, one dangerously and six severely wounded, 12 in all, or an average of one per regiment. Was this a loss that it would have been difficult to supply?

27. I know that the commander asked for more European officers, but, as I before said, his regiments had not the present complement, nor ought it to be forgotten that requisitions were made for large reinforcements of troops, though the original force was believed to be ample for the service required of it.

28. In the Abyssinian war there was some severe demand for officers, but I would observe that the staff of that army was very unusually large, and that nearly a hundred officers were taken for transport duties; whereas in campaigns in India the most successful marches have been made by large armies without one officer being found necessary for such duties. Furlough, moreover, was not stopped during the Abyssinian campaign, and the Commander-in-Chief in India objected to give second squadron (or wing) subalterns for duty in Abyssinia, though these very appointments were created in 1865, not because the officers were wanted for duty, but as a general reserve. Had the campaign been prolonged, of course it would have eventually been found necessary to draw on this description of reserve.

29. There is another reserve I have not yet alluded to, though it is the first that would be made available. I allude to so-called unemployed officers. There are at present some 300 of these in the three Presidencies,* but this arises from circumstances not likely to occur again, viz., the alteration of organization in 1861, by which a good many officers became in excess of requirements, and some of whom were not technically qualified for employment. When these officers are lieutenant-colonels or majors, they are attached to garrisons for duty; when they are only captains and subalterns, they are attached for duty to Native regiments, and are of course in excess to the fixed establishment of those corps.

* About one half of these are captains and subalterns.

30. This forms to some extent a present reserve, but a reserve which will greatly diminish. It will never, however, entirely disappear, for there will always be a small percentage of officers who, from having required prolonged leave or from other circumstances, have lost appointments, and who will be in excess to establishment of corps. I suppose this will always be a body averaging two or three per cent. of the whole Staff Corps, or say 70 officers, several at least of whom would be young and capable of useful service in the field. This would be quite the first reserve to draw upon.

31. The present strength of Native regiments, however, is so small that the non-commissioned officers and rank and file can be at any time increased to a considerable extent without necessitating any increase of British officers, or an addition of a single troop or company. For instance, if war arose, each company in each Native regiment might be increased by one havildar, one naik, and 25 sepoys, and each troop of cavalry by two duffadars and 20 sowars. This would give for field service not at all too large a strength for regiments, and it would add to the armies of Bengal, Madras, and Bombay, and the frontier force, 28,000 infantry and 4,700 cavalry, or say 32,000 men. This in itself answers almost to a reserve of officers, that is, we have a staff of regimental officers capable of carrying on the duty of much larger regiments than we maintain in time of peace.

32. I think, therefore, that we have a quite sufficient reserve of officers; but if this view is not agreed on, it is simply a question of money. If a reserve is really wanted, all that is necessary is to attach a third subaltern to each infantry corps in the three Presidencies, and an additional 130 officers are secured. This, as they really need not receive staff salary, would cost, including horse allowance, a little under 40,000*l.* a year; not a very large addition to military expenditure, but one that I think is needless.

33. If such a reserve was added, it would, however, be advisable to lay down most strictly tha it was a *reserve*, and always usable as a reserve. If this is not very stringently laid down there is a tendency to consider these officers as part of the regiment to which they are attached and hardly removable therefrom. In proof of this I may state that when the second subaltern was allowed to each regiment in 1865, the general* order expressly stated that the appointment was sanctioned "so as to provide a "reserve for the Staff Corps and for the various departments in which military officers are "employed in India."

* No. 847, dated 8th September 1865.

34. Nothing could be more clear than this, but so apt are the military authorities to lose sight of the purpose for which this very appointment of second subaltern was created, that in 1868, when large bodies of muleteers were being raised in the Punjab for service in Abyssinia, and officers were needed to take them to that country, the Punjab Government having applied to the Government of India for the services of Lieutenant Sartorius, second squadron subaltern, 6th Bengal cavalry, for the duty, the Adjutant-General, in reply to the requisition of the Government of India for Lieutenant Sartorius, stated that "the Commander-"in-Chief objects to (give) officers holding appointments in "Native regiments, but the services of Lieutenant Williams, (P. H.) attached to 20th Native Infantry at Meean Meer, are available."

Deputy Adjutant-General's telegram, dated 25th April 1868, to Secretary to Government.

35. As Government did not care whether Lieutenant Williams or Lieutenant Sartorius went, the following reply was sent, which affirmed the principle lost sight of in the Adjutant-General's office :—

"If Lieutenant Williams is really at Meean Meer, and available, direct him to report himself to Punjab Government for duty with muleteers; but if not, Lieutenant Sartorius should go, as he is second squadron subaltern, and such officers are always available as a reserve for general purposes."

"There appear to be various Native regiments that have spare officers, that is, more than six present, and especially 14th Cavalry, which, according to army list, has extra officers as well as second subalterns, including Captain Ross, 20th Hussars, whose appointment to a Native corps was sanctioned for a vacancy, and not in excess. He could replace Lieutenant Sartorius with 6th Cavalry."

36. Finally, to sum up what I have said, I would recapitulate that, supposing a war takes place, the first reserve to employ is the body of officers doing general duty, or attached to corps in excess; a body that will hereafter not be very large, but still probably will always muster a number of efficient captains and subalterns (the class most wanted) equal to the number of killed or severely wounded in any campaign that we have had in India.

37. The second reserve is to be found in the second subalterns of regiments who are avowedly a reserve. If only half of those in India can be laid hands on, this will give at least 80 officers.

38. The next reserve to indent on is the large body of officers on furlough.

39. The fourth reserve would be the first subaltern or even a wing or squadron officer each from regiments far removed from the scene of action, as a commandant, staff officer, and one officer to command each wing or squadron could always carry on the cantonment duties at quiet places.

40. The fifth reserve would be that of such young officers as could be spared from civil employ, Public Works, Survey Department, &c.

41. This last is a reserve not to be lightly drawn on, and would only be wanted in case of a prolonged and desperate war, and if the war had been prolonged, probably new men might have been brought in, either direct from England or from regiments out of India, who, in a few months would be ready for duty with troops.

42. Finally, if on deliberate consideration these reserves are thought insufficient, I have indicated how another large reserve may be provided at a cost of 40,000*l.* a year.

H. W. NORMAN.

Simla, 18th September 1869.

A.

APPENDIX to paragraph 14 of a Note by Major-General NORMAN, on the Reserve of Officers for the Indian Service, dated 18th September 1869.

EXTRACT from Memorandum by Secretary Colonel NORMAN, on the question of the alleged Grievances of the Officers of the Indian Army, dated 19th March 1866.

"Another objection raised to the present system is that there is no reserve of British officers for the Native army to meet the casualties of a war. I would ask what was the reserve formerly available, and shall then be able to show, I hope, that there is a better reserve now than there ever was before.

"Formerly, when service took place and officers were needed, it was customary to remand officers in staff employ temporarily to their corps. Thus deputy commissioners, revenue surveyors, officers engaged in making roads and canals, came back for a time. These officers had been often many years absent, perhaps in a district where the language of the troops was unknown. In the best of cases they had become unused to drill and to the system of the army, in the worst of cases they were utterly useless and inefficient, besides being at times discontented owing to loss of some of their pay and the inconvenience to which they were subject, particularly in a prolonged

campaign, where perhaps there was little glory and much hardship and sickness. At the same time, these officers, by virtue of seniority, took companies, and sometimes even regiments, from those regimental officers whose whole services had been with the corps, and who thus, when the field service which they had been long hoping for came, found themselves deprived of the position they had held by officers who in many cases they saw to be unfit to take their places.

"Such was the reserve, and this, it must be recollected, was the reserve calculated upon to increase the ordinary complement of 10, 12, or 14 officers, and to keep it so as to ensure four mounted officers, and at the least an officer with each company of standing sufficient to command it, not only at the commencement of, but throughout a war. It rarely happened that more than three, or at the outside four, officers per regiment could be spared from departments, the work of some of which was possibly largely increased by the war in which corps were engaged, and once these two, three, or four officers were sent to their corps, the reserve, unsatisfactory as it was in quality, was at an end. There was, it is true, another source of supply resorted to in the Sutledge campaign. I allude to the order then issued directing all cadets on landing to be at once sent to the army in the field. These young officers hurried up by dawk, reached the army without camp equipment, without servants, ignorant of the language of the men, and ignorant of their ways or of drill, or of the system of the army, and yet by virtue of their being European officers taking rank at once above all Native officers.

"Such were the two sources of reserve for officers of the old Native army, and it cannot be thought that either source was very satisfactory."

B.

APPENDIX to paragraph 15 of a Note by Major-General NORMAN, on the Reserve of Officers for Indian Service, dated 18th September 1869.

EXTRACT from Memorandum by Secretary Colonel NORMAN, on the question of the alleged Grievances of the Officers of the Indian Army, dated 19th March 1866.

"Under the present system, each regiment has actually two officers attached, or two-sevenths of the whole, who may be looked on as a reserve to fill the places of the real working officers of the corps, viz., the commandant, the two wing commanders, the adjutant, and the quartermaster. Being staff appointments, all situations in Native corps will doubtless be kept filled up, so I assume that corps will have their full complement.

"This, I contend, under the present system, is as large a reserve, and certainly as satisfactory a one, as was available formerly; but suppose the war is very arduous and prolonged, and casualties so great as to render it impossible to fill up vacancies in sufficient numbers from the candidates for appointment to the Native army in British regiments (who, it must be remembered, will be very different from newly raised cadets, being officers of three years' service, and qualified in professional knowledge and Hindustani). In such a case we may have to go elsewhere, and a ready and good reserve, I think, is available. India is such a vast empire, with so many races and interests, that war can hardly ever be going on all over the country, while railways now offer great facilities for officers to travel from one end of India to the other with rapidity. We will suppose, therefore, that thirty Native regiments were actually on service in the north-western frontier, and engaged in an arduous struggle which was likely to be prolonged and to be attended with many casualties. It might be desirable to send European officers to keep the corps so engaged complete, in addition to appointments made from time to time from British regiments.

"Probably ten more Native corps might be considered in reserve, and should remain with their complements untouched; but as for mere cantonment duty a corps could be managed by a commandant, one officer acting as adjutant and quartermaster, and by two officers in charge of wings, the corps removed from the scene of action and not in the immediate reserve could be drawn upon, if necessary, to the extent of two or three officers each. In fact, as there are 85 Native regiments in Bengal, and allowing 30 to be engaged and 10 in reserve, the remaining 45 could spare 135 officers, or four for every regiment engaged, and as these corps commence with two-sevenths of their complement as a reserve, there would really be a reserve of a 100 per cent., and this without touching the regiments in reserve or going beyond the limits of Bengal.

"I maintain that if we ever require a larger reserve of officers than this, things will look bad indeed, and I am not aware of any system ever having been thought of which would provide a sufficient supply under such circumstances. But even when this supply is exhausted we should still have the reserve which was drawn on at the first under the old system, viz., the officers of the various departments, those in civil employ, who would be at least as efficient for regimental duty as they were formerly, seeing that they could not enter the Staff Corps without three years' duty, or without possessing a thorough knowledge of their duty.

"But if there is a better reserve in point of numbers than formerly, how much better is the quality of that reserve? Instead of discontented officers joining regiments for duties with which they are unacquainted, and from even a correct performance of which they can reap no benefit in the department in which they expect to pass their lives, there would now be officers thoroughly acquainted with the system, habituated to serve with Native soldiers, and who might reasonably look to good service in war in their own proper line being held to be in their favour when any question of promotion came under consideration."

No. 53 of 1876. Military Department.

To the Most Honourable the Marquis of Salisbury, Her Majesty's Secretary of State for India.

My Lord Marquis,

In continuation of our despatches Nos. 51 and 52 of the 3rd instant, we now proceed to submit to your Lordship an expression of our views as to the officering and organization of the Native Army; and first we would say, after giving full weight to all that is urged against entrusting the command of troops and companies to Native officers, we have no hesitation in affirming that as respects the Bengal Army, to adopt any other system would be in the highest degree unwise; while in Madras and Bombay, although the change in this particular has perhaps not as yet been so successful as in Bengal, we are confident that continued efforts to improve the Native officers will be crowned with success. Even in those Presidencies it does not appear that the regiments have in any respect deteriorated in discipline or drill in consequence of the increased authority given to Native officers, although the majority of these must be men who, up to a late period of life, have been trained under a different system, while the reductions and other arrangements connected with the European officers, especially in Madras, cannot but have had an influence prejudicial to any change of the kind.

2. We think that but little can be added to what is urged on this head in the Adjutant-General's letter No. 1932B of the 14th August, and in Sir Henry Norman's minute of the 11th October last, and we are convinced that what has proved successful in Bengal, will, if once it is thoroughly understood that no change will be made, and that it is the intention of the Government that none but thoroughly efficient men shall be made Native officers, be equally successful in Madras and Bombay.

3. We do not consider that it is necessary to require higher qualifications in Native officers than such as are proper for the perfectly efficient command of troops and companies, and we are not prepared to admit that there can be any insuperable difficulty in finding, among a body of non-commissioned officers selected from several hundred Native soldiers, the very limited number of men of sufficient character and intelligence required to perform these duties, if properly instructed, while we should still hope that it may be possible in Madras and Bombay to occasionally bring in Native gentlemen at once as Native officers as is now done in Bengal.

4. We have in Despatch No. 52 made proposals which, if adopted, will make the post of Native officer in the Infantry one of considerable advantage as it is already in the Cavalry, and we cannot anticipate a lack of suitable candidates. We would add that not only do we think we can obtain Native officers thoroughly fit for the duties required of them, but also that it will be very conducive to the efficiency of the soldiers of other grades to have such desirable positions open to those who show themselves possessed of superior qualifications.

5. We can hardly anticipate that it would now be seriously proposed to place European officers in command of troops and companies of the Bengal Army and Punjab Frontier Force. In all the 24 regiments of cavalry in this Presidency, in the Guide cavalry and infantry, and in 46 out of 60 regiments of infantry, no other system has obtained than the present one since the corps were raised, while in the 11 old regiments of infantry of the Bengal Army and in the two regiments raised out of loyal remnants of old corps the new system has thoroughly taken root during the last 14 years. One regiment, the 1st Goorkha Light Infantry, which has recently done good service in Pérak, was for many years on the irregular system, from 1850 to 1861 on the regular footing with the full complement of officers, and subsequently on the present organization. Nor, it may be supposed, would any one seriously propose to introduce a new system into the three regiments of Sind Horse, the Poonah Horse, the 21st Native Infantry (Marine battalion), the 27th and 29th (Belooch) Native Infantry, and the 30th Native Infantry (Jacob's Rifles) of the Bombay Army, in which the Native officers have always been the troop and company commanders.

6. If this system is maintained for the Bengal Army and the above-mentioned corps of the Bombay Army, or 93 in all, it would be very difficult to apply another

system to 73 corps in Madras and Bombay. To do so indeed, and to place the Native officers in inferior positions, could hardly be advocated except on the ground of the *matériel* of the latter corps being so inferior to that of the former that it was unable to produce good Native officers, a position which we cannot accept.

7. Having decided, therefore, to recommend a retention of the present organization as respects Native officers, we have to consider whether any alteration should be made in the number or duties of the British officers, or whether any changes should be made in the present system under which they are appointed or promoted.

8. We consider the present complement of European officers sufficient for all purposes of Indian service, and we think the duties assigned to each officer are appropriate. With a larger complement it would be difficult to provide adequate occcupation for the officers, while to afford emoluments to them such as at present attract good officers to Native regiments and make them content to continue to serve in them, would entail an almost prohibitory expense.

9. We believe the complement to be ample for peace and war, it being understood that the work of troop and company commanders does not involve upon the European officers. It may be a matter of doubt whether under the circumstances of very distant service or if Native troops were to be engaged in war with the army of the European power, some increase of junior European officers should be made to regiments such as we believe to have been occasionally made in the strength of officers of British battalions proceeding on foreign service, but the possibility of such increase is not in our opinion a sufficient reason for maintaining habitually a large and expensive complement of officers to meet a very uncertain contingency, especially as if that contingency arose, or there were any extraordinary casualties on service, we have various bodies of officers to draw on for a reserve, as shown by the Commander-in-Chief in India and Sir Henry Norman, in the enclosures to Despatch No. 51. In addition to what is there stated as to the reserves that are available, we would mention another which has recently been created, and which would at once be utilized if wanted. We allude to what arises from the recent regulation by which the establishment of officers in India is to be kept complete to the authorised number of seven. This practically gives a large reserve, for at all times one or two officers are on furlough from each regiment, and at least half of these are probably in good health, and could reach India in a few weeks after they were recalled. We may estimate thus, that as soon as the establishment is complete, at least a hundred regimental officers in excess of the seven per regiment in India, would be back in the country in six or seven weeks after we required them.

10. We have no alteration to propose in the emoluments of the European officers. The acceptance* by your Lordship of our recommendation that all probationers if officiating for absentees, or even if temporarily displaced from an appointment in a regiment, shall receive the full allowance of squadron or wing subaltern, removes a hardship that at times told severely upon young officers from circumstances quite beyond their control. The pay of the various grades in regiments, as given in the margin, affords a fair salary, and, with a proper flow of retirements on the part of older officers, secures an increase of income after comparatively short periods in each position.

* Despatch No. 11, dated 13th January 1876.

Pay per mensem of Officers in the Native Army.

	Rs.
Cavalry.	
Commandant, if Lieut.-Colonel	1,527
Ditto Major	1,310
2nd in command, if Lieut.-Colonel	1,127
2nd Ditto Major	940
2nd Ditto Captain	674
2nd Squadron Officer, if Major	850
2nd Ditto Captain	584
3rd Ditto Captain	554
3rd Ditto Lieutenant	405
Adjutant, if Captain	624
Ditto Lieutenant	475
Squadron Subalterns, if Captain	524
Ditto ditto Lieutenant	375
Infantry.	
Commandant, if Lieut.-Colonel	1,427
Ditto Major	1,240
2nd in command, if Lieut.-Colonel	1,097
2nd ditto Major	910
2nd ditto Captain	644
Wing Officer, if Major	870
Ditto Captain	604
Adjutant, if Captain	574
Ditto Lieutenant	425
Quartermaster, if Captain	524
Ditto Lieutenant	375
Wing Subalterns, if Captains	474
Ditto Lieutenants	325

The above are exclusive of allowances for offices, stationery, repair of arms, &c.

11. In accordance, however, with a recommendation of his Excellency the Commander-in-Chief, made in the Adjutant-General's letter of the 26th July 1873, No. 2418A, copy of which is enclosed, we would make some alteration in the designation of officers and call squadron and wing *officers* squadron and wing *commanders*, and squadron and wing subalterns squadron and wing *officers*. There would then be but two classes of officers in each regiment in addition to the commandant, the upper

class including the second in command, and the lower class the adjutant in the cavalry and the adjutant and quartermaster in the infantry. We think this would be an improvement, and it would prevent the anomaly which now arises from its being necessary at times to nominate a captain as squadron or wing subaltern, while the duties which devolve on these officers are certainly superior to those which devolve on the ordinary subaltern officer of a troop or company.

12. In Appendix A. of the Adjutant-General's letter of the 14th August 1875, are contained rules which provide for the advancement, exchange, and retirement of European officers of Native regiments. We have gone carefully through these, and after much deliberation, have approved generally of their principle, and made certain alterations as to details with which his Excellency the Commander-in-Chief entirely concurs. We attach to this letter a revised code of rules which we submit for the approval of your Lordship, and as a step towards carrying them into effect, we propose that all officers appointed to the purely military staff hereafter should hold their appointments for three years only, remaining seconded in the rolls of their regiments for that period, in the way sanctioned for brigade majors in Despatch No. 9 of 23rd January 1873. Half of these military staff officers are usually taken from British regiments, and we estimate that the number of officers who will be thus seconded in Native regiments will be about equal to half the number of those regiments.

13. We concur with the Commander-in-Chief that officers appointed to brigade commands, and the heads and deputies of the great military departments, should be exempted from this rule, and hold their appointments for five years and be struck off the strength of their regiments as at present.

14. We believe that no material inconvenience will arise to military departments from other officers serving in them for only three years instead of for five, while the staff officers will not have time during their absence to forget the details of regimental duty or even the characters of their men, and at the same time regiments will benefit greatly by having with them a large leaven of officers who have experience in staff as well as in regimental duties.

15. But perhaps the most important change of all which we desire to make is one relating to the relinquishment of their regimental appointments by officers after a certain period of service as laid down in the proposed rules. We deem it indispensable to introduce into the Indian Army some rule of this sort. Not only is it most necessary in this climate and with Native soldiers to have as Commandants only such officers as retain their full vigour, but it is essential to the interests of the service to secure such a regular flow of promotion as shall ensure that the second in command and the other subordinate officers are not unduly old for their positions. The rules we propose will secure this desirable object, and are much wanted at the present time when the tendency of the regulations regarding pensions and succession to Colonels' allowances has been to induce officers to continue in the service longer than heretofore, so that even seconds in command, especially in Madras where reduction in the number of regiments was very considerable, are of an age too far advanced for even the higher grades, —a state of things fatal to efficiency. We beg to refer your Lordship in support of this opinion to the statistics to be found in Appendix P. of the Adjutant-General's letter of the 14th August 1875, which gives the length of service of regimental officers of the three armies, and we trust that your Lordship will agree with us that the facts shown by those statistics afford an ample justification for the introduction of the rule which we propose, and which we look upon as essential to the efficiency of the Indian Army.

16. At the same time we bear in mind that officers who have served in the army in India for lengthened periods are deserving of much consideration, and should not by the application of any rules be placed in a position of pecuniary difficulty. We, therefore, in the first place have inserted in the rules a clause guarding against any sudden and unexpected changes; and secondly, we propose that for officers who relinquish their regimental appointments in consequence of length of service, there shall be three courses open, as follows:—

I.—That they may reside where they please in India on the pay of their rank, namely, Rs. 827 a month, until they succeed to Colonels' allowances or become General Officers, whichever may first occur.

II.—That they may reside in England on the pay of their rank (1*l.* a day) until they succeed to Colonel's allowances or become General Officers.

III.—That they may retire on the pension to which they are entitled, availing themselves of the benefit of the existing scheme for commuting Colonels' allowances, which should be kept specially open to these officers.

17. This latter privilege would only apply to officers who succeed to Colonels' allowances after a fixed period, that is, to those who were in the Staff Corps or Indian Army before 1866, and it will be some years before any others can have served long enough to come under the operation of the system of retirement which we here advocate. As officers who entered after 1866 should, in course of time, relinquish regimental appointments under the same principle, we propose, when any system of pension for officers of Her Majesty's British Army is adopted in connexion with the compulsory retirement recently introduced in that army, to again address your Lordship, because the system of pension adopted at home may affect our recommendations. But we think it will be necessary to give the highest rate of pension at an earlier period than at present, and thus do away altogether with the inducement on the part of these officers to serve on for the 38 years which is now required to enable them to claim the most advantageous retirement, as well as to lessen the desire to remain on for Colonels' allowances, succession to which will in these cases be after an uncertain period but probably much later than at present.

18. We do not think any of the other rules proposed in the appendix to this letter require observations on our part, but we desire to express our extreme anxiety that some such rules should be laid down and steadily enforced. It is most essential that the same system should prevail in these matters throughout the whole army of India, and it is especially necessary that it should not be liable to change in each Presidency with each change of a commander-in-chief. The rules will ensure to the good regimental officer proper promotion in his corps, and while not absolutely barring exchanges, or the occasional appointment of outsiders, they will secure that the officers have a distinct and permanent association with their regiments, an object towards which much has been done in Bengal in the last few years.

19. As regards the first appointment of officers, we shall address your Lordship separately in reply to Despatch No. 11 of 13th January 1876. We have nothing to say against the present system of appointment, which has, we believe, brought into the Indian service a most excellent body of officers, if the supply is sufficient, as it promises to be in Bengal. In Madras, since we addressed your Lordship on the 6th September 1875, No. 211, only three candidates for the Staff Corps have come forward. As far as we can calculate there should have been 15 admissions during the same period to meet the normal demand for candidates, to say nothing of there being a large number of vacancies in regiments as then reported by us. We look on this state of things as destructive to the efficiency of the Madras Army, and trust that your Lordship will consent to the application of a speedy remedy.

20. Objections have been raised to the Staff Corps system of promotion, and doubtless it is not perfect, but it is very difficult, if not impossible, to devise a system which shall be in all respects satisfactory, and provide anything like regular promotion for a body of officers for the various duties in India, and we would not advocate interference with it. Its disadvantages have many compensating advantages, and the present unsatisfactory state of affairs as respects too great a preponderance of field officers is really owing to retention in the service of a vast number of old officers and the stoppage of admission at the bottom for a lengthened period. With a regular system of retirements and admissions there seems no ground to suppose that the normal condition of the corps will give too large a proportion of superior officers for the offices they fill and the duties that devolve on them, while the periods fixed for attaining the higher grades cannot be considered unduly short.

21. We are not aware of any system which could with convenience be substituted for the Staff Corps system of promotion, or for the system of supplying regiments and departments from that corps, while if such a system was successfully sketched out it would, we apprehend, be exceedingly difficult to introduce

it without an amount of change that would be most disturbing in every way, nor do we apprehend that any change likely to be adopted would secure that Indian service should be as popular as it is under present arrangements.

22. We concur with his Excellency the Commander-in-Chief as to the propriety of the various departments of military administration being taken from the army as at present, and also that within certain limits no bar should be put upon officers going into civil employ. The withdrawals for the former are in the nature of things limited, and no doubt the tendency now is, and we think it a right tendency, to restrict very much the withdrawal of military officers for civil employ, but the door should not be closed, and it should be competent to the Government to take military officers for political employ if their services are required on public grounds at any period of their career. We, think, however, that in all future cases of appointments of young officers to civil or political employ, they should after 10 years be required either to return to the army or elect for a civil career, and in the latter event be struck off the strength of the army, retaining their claim to military pension, or such arrangements being made for their pensions as may be determined, if the principle we advocate shall be approved.

23. This, no doubt, would deprive the army of a portion of the officers who have been looked on as a reserve, but there would remain those officers in civil employ most likely to be useful, viz., those who had been less than 10 years away from military duty.

24. It does not appear to us that it would be necessary or expedient to apply this rule of removal from the army to field officers selected for political duties, should it be deemed at any time desirable so to employ them.

25. The composition of regiments of the Native Army is very fully explained in the letter of the Adjutant-General of the 14th August and in Sir Henry Norman's minute. We have no general proposal to make on this head. From time to time changes have seemed desirable in this matter in particular regiments, and have been ordered by us, and a similar course can be pursued in future whenever it seems necessary; nor are we, after much consideration, prepared to advocate a greater localization of corps than at present exists, or the formation of two or more regiments into so many battalions of one regiment. Any change in the Native Army that is not distinctly for the good of the service is to be avoided, and we are not certain that any particular advantage would arise from the doubling up of regiments, especially as, owing to the desire of the Sepoy to serve with those he knows, it would hamper recruiting if a man had to enlist in one battalion with a liability to serve in another, and if this condition was not observed there would be little or no use in doubling them up.

26. We agree with the Commander-in-Chief and Sir Henry Norman that it would be inexpedient to introduce a system of localizing regiments of the Native Army, and we are not at present prepared to recommend any arrangements in that direction beyond those which already exist.

27. Our remarks generally in this letter apply to the Madras Cavalry as well as to other portions of the Native Army, but there are peculiarities in this branch of the service, which, as your Lordship is aware, have led to a separate correspondence, and we hope to send a despatch almost immediately in reply to your communication No. 31 of 4th February 1875.

28. We desire to conclude this despatch with the expression of our conviction that the Native Army, taken as a whole, is in a good condition. Some parts of it may not have altered much in *matériel* or discipline, though in all there has been more useful instruction than formerly, and we are not aware that any part of it has fallen off, but we are well assured that, as respects the great Native Army of Bengal, the appearance, the spirit, and the intelligence of the troops, are far in advance of what they were before the Mutiny, while a progressive improvement has been observed in the instruction and in the readiness of the regiments which have been assembled at the various camps of exercise which have taken place since the year 1871. The conduct of Native troops too under the new organization on field service, often of a very harassing description, during the last few years, has been most excellent.

29. Minutes by the Honourable Sir A. Arbuthnot and by the Honourable Sir A. Clarke, dissenting from the views expressed in the 8th and 9th paragraphs of this despatch, are enclosed. A Minute by his Excellency the Viceroy will follow by next mail.

We are, &c.
(Signed) NORTHBROOK.
NAPIER OF MAGDALA
H. W. NORMAN.
ARTHUR HOBHOUSE.
E. C. BAYLEY.
W. MUIR.
A. J. ARBUTHNOT.
A. W. CLARKE.

Fort William,
The 10th March 1876.

From Colonel the Hon. F. A. THESIGER, C.B., Adjutant-General, to Colonel H. K. BURNE, Secretary to the Government of India, Military Department,—(No. 2418A, $\frac{\text{Native Army}}{\text{Standing Orders}}$, dated Head Quarters, Camp, the 26th July 1873).

IT has been brought under the consideration of the Right Hon. the Commander-in-Chief by the committee now assembled for the revision of the standing orders of the Bengal cavalry and infantry, that a change in the established nomenclature of some of the grades of British officers serving in the Native army is most desirable.

2. The committee justly represent that the terms "squadron" and "wing subaltern" are now in most cases complete misnomers, owing to the fact that the corresponding appointments are in Bengal more frequently held by captains than by subalterns, and a reference to the Army List of the other Presidencies shows that they are even occasionally held by *field officers*.

I am therefore desired to convey for the favourable consideration of Government his Excellency's ecommendation that the following designations may be authorized in lieu of those in force, viz.—

Cavalry.
Squadron Commander for Squadron Officer.
Squadron Officer for Squadron Subaltern.

Infantry.
Wing Commander for Wing Officer.
Wing Officer for Wing Subaltern.

3. Lord Napier observes that these changes, if approved of, will not only remove the anomalies above alluded to, but will bring the positions of officers more in accord with their army rank, at the same time facilitating their employment in the Native army.

APPENDIX A.

PROPOSED RULES to regulate the regimental promotion of European officers of the Indian Army.

1. The establishments of European officers of regiments of Native cavalry and infantry shall be fixed as follows:—

Cavalry.
I. Commandant.
II. 2nd in Command and 1st Squadron Commander.
III. 2nd Squadron Commander.
IV. 3rd Squadron Commander.
V. Squadron Officer.
VI. Squadron Officer.
VII. Squadron Officer.

Infantry.
I. Commandant.
II. 2nd in Command and Wing Commander.
III. Wing Commander.
IV. Wing Officer.
V. Wing Officer.
VI. Wing Officer.
VII. Wing Officer.

One of the squadron officers in the cavalry to be adjutant, and one of the wing officers in the infantry to be adjutant, and another quartermaster.

II. Regimental position constitutes seniority in all regimental duties, but when employed with mixed forces, officers rank according to their position in the army.

III. An officer on the completion of 31 years' service, shall not retain any regimental appointment which he may have held for five years, unless re-appointed thereto by the Commander-in-Chief for a further term not exceeding five years. An officer of 31 years' service who has not held his regimental appointment for five years may complete that term, and present incumbents will not be required to vacate them for a period of three years from this date or a period of eight years from date of their appointments.

The re-appointment under this rule of officers of regiments serving under the Government of India will rest with the Governor-General in Council.

All regimental appointments will be vacated as at present upon succession to colonels' allowances, or on attaining the rank of major-general.

IV. On the occurrence of a vacancy in a regiment created by the death, retirement on pension or otherwise, or the relinquishment of regimental duty under Rule III., the promotion in the several regimental positions shall be given to the senior officer of each lower grade, subject to the following exceptions:—

1*st.*—If the officer standing next for promotion be pronounced unfit or undeserving by reason of professional unfitness or misconduct. The unfitness of an officer will as a general rule be determined by the reports of regimental commanders and the inspecting general officers with such further inquiry as the Commander-in-Chief or (in the case of regiments of the Punjab Frontier Force and the Central India Horse immediately under the Government of India) the Governor-General in Council may order.

2*nd.*—Should vacancies occur simultaneously or within a very brief period in the command and second in command of a regiment, one of them may be filled by an officer of suitable rank from another regiment or appointment, or from the unemployed list; or may be given to the senior officer of the next grade if he have special qualifications or claims from length of service or gallantry in the field.

The position of regimental commandant, however, is so important that no officer will have a claim to succeed, either temporarily or permanently, unless considered by the Commander-in-Chief or the Governor-General in Council (as aforesaid) to be perfectly qualified in all respects.

3*rd.* If there are officers who from previous service with a regiment have strong claims upon it, these claims shall be taken into consideration on the occurrence of any vacancies; for instance, where an officer owing to promotion has lost his regimental appointment, or where an officer taken from a regiment for staff employ for a fixed term has completed that term, and thereby come on the unemployed list.

4*th.*—The order to absorb unemployed officers, and the present preponderance of senior officers, have caused many appointments which usually would be held by subalterns to be held by captains. As long as this condition continues, the relative position of these officers in the regiments in which they are serving must be according to their present standing, but promotions to the next grade will be decided by their respective claims of length of service with the regiment, standing in the army, qualifications, and conduct. Claims of long regimental service will always receive much consideration.

V. Temporary vacancies caused by the absence of officers on furlough or on leave shall be filled by the senior qualified officers of the next grades as laid down in Clause IV.

VI. In the event of no squadron or wing officers in a regiment being qualified for the posts of adjutant or of quartermastor, one will be brought in from elsewhere, his position among the squadron or wing officers being determined by the Commander-in-Chief or the Governor-General in Council, as the case may be. An officer on attaining the rank of captain shall vacate the appointment of adjutant or quartermaster, unless re-appointed. The adjutants and quartermasters are assistants to the commanding officers as in the British service, and their office gives them no authority over senior officers.

VII. When an officer is appointed to the staff for a term of three years, he will be made supernumerary in his regiment, and the vacancy thus caused shall be filled in the same manner as if the officer had proceeded on furlough, with the exception that in such a case the whole of the staff allowance attached to his appointment shall be available for the officer acting for him.

VIII. An officer made supernumerary shall continue to hold his position in the regiment, and shall be promoted in room of any vacancy as if he were present. On the termination of his staff service he shall revert to his regimental appointment.

IX. A supernumerary second in command of a regiment employed on the staff, and succeeding to the command of his regiment, shall at once relinquish his staff appointment and rejoin his regiment.

X. Subject to the sanction of the Commander-in-Chief, or of the Government of India, officers of Native cavalry and Native infantry, of equal regimental position and of the same branch of the service, may exchange with one another, provided that the commanding officers of the respective regiments certify that the exchange does not originate in any cause affecting the honour, character, or professional efficiency of the officers.

XI. An officer exchanging into a regiment shall be placed for regimental seniority below all officers holding equal regimental position at the time of his exchange; that is, a squadron or wing commander, or a squadron or wing officer, will enter his new regiment as junior squadron or wing commander, or junior squadron or wing officer, respectively.

MINUTE by His Excellency the COMMANDER-IN-CHIEF.

1. On this point I would say, that the term of the officers' tenure of the military appointment may always be extended five years if he is efficient.

Sir H. Norman doubts the expediency of officers being caused to vacate their appointments after 31 years' service, unless reappointed; and would prefer to try the expedient of an alteration of the pension rules, in order to encourage retirements.

If he begins at 18, and serves 31 years, he will be 49. With five additional years, he will vacate regimental command at 54 years. After a man reaches 50 years, as General Norman observes, he can seldom have the freshness and activity necessary for the hourly demand on him, if he does all that the commander of a regiment should do.

The experience gained from the recent inducements to retire, shows that few of the commanding officers of regiments are drawn away by the commuted pensions, and that a limit to retention of command is necessary.

2. There is no security that the demand may not exceed even the average here stated. The actual incidence of the demand is shown in the following statement:—

Does not think the withdrawal of officers for civil and political employ and army civil departments excessive, as 68 regiments have supplied 83 officers in five years, or if averaged, that each regiment gave only one officer in four years.

1	Regiment	lost	- 6 Officers.
2	ditto	„	- 4 ditto.
6	ditto	„	- 3 ditto.
11	ditto	„	- 2 ditto.
48	ditto	„	- 1 ditto.

The demand would probably have been much greater had not the Government listened to the objections of the Commander-in-Chief.

The voices of the Commanders-in-Chief have always been raised against the measure, as is shown in the strong protests made in the appendices attached to the Adjutant-General's letter.

3. It may frequently happen that from his age compared to his regimental grade, and with consideration of his prospect of promotion, a good officer could be spared without injury to his regiment; but such officers when they could be recommended by the Commander-in-Chief, would probably not suit the views of the authorities requiring an officer. It would never be accepted that his nomination was not as much the simple result of patronage as the nomination made by the departmental authorities.

4. I consider it impossible to maintain the Native army in the necessary state of efficiency unless it is protected by some stringent rule against the withdrawal of officers above the grade of wing subaltern, except when the emergency for the public service is much greater than the ordinary demand of departments.

Unless there were such a rule, it would be better to divide the Staff Corps into two entirely separate departments, civil and military, as has been frequently recommended.

5. Under the orders of the Governor General, there are 43 corps and batteries of Artillery, contrasted with 68 regiments under the orders of the Commander-in-Chief. The appointments and promotions in these corps are administered by the Governor General through his military secretary.

6. For the corps of Cavalry and Infantry, which require over 190 officers, exclusive of the staff, probationers should, as a rule, go direct from British regiments, instead of passing through the regiments under the Commanders-in-Chief. They are obliged to be thoroughly instructed in their military duties before they can leave their regiments, therefore the necessity of passing them through the Native line regiments to learn their regimental duty, which formerly existed, exists no longer.

It cannot but be injurious to the regiments of the line to be deprived of their smart officers for other regiments, and made the receptacle for those who turn out badly.

Those officers who prove incompetent, or may have misconducted themselves, should be dealt with according to the regulations and Articles of War, and not sent to carry their discredit into the regiments under the Commander-in-Chief.

Of the officers attached to the corps under the Government of India, there are—

136 from Bengal.
42 „ Madras.
16 „ Bombay.

7. The increased pension at an earlier period of service would be in many cases a great boon, but I think the experience of these boons shows that they do not act in the manner desired in stimulating regimental promotion.

General Norman would give a pension of 600 a year after 30 years' service, instead of as at present 35 years, and would abolish the intermediate pension and that of 750 after 38 years.
The pension of 365 to be given at 28 years, or on attaining the grade of lieutenant-colonel.
The grade of 292 after 24 years might be abolished, leaving only 191 after 20 years' service.

The 365*l.* intermediate pension led very few officers comparatively to reside in England under the permission granted in G.G.O. 797 of 1872.

I therefore still think a limit to the period of regimental command is necessary.

The abolition of the intermediate grades of pension would tell hardly on those compelled to retire by ill health, or other circumstances, at periods just short of 26 years, and would effect no saving.

8. The recommendations were carefully considered, both with regard to the pay of the cavalry and to the pay of clerks in public offices, and also of Natives in civil employ. If the public purse could not meet the entire recommendations at present, the reduced allowances proposed by General Norman would be a very considerable improvement on the present conditions ; but I would strongly advocate an increase of the jemadars of the first class, at least from 35 to 45, and of the second class from 30 to 40 ; even by taking 10 rupees off from the pay of the two junior subadars.

General Norman would give the Native officers an increase on the old allowances, provided they remain real commanders of companies as per scale 1.

1. GENERAL NORMAN'S SCALE.

	Total.
1 Subadar-major - - -	150=150
4 Subaders - - - -	100=400
4 „ - - - -	80=320
4 Jemadars - - - -	35=140
4 „ - - - -	30=120
	1,130

2. OLD SCALE.

	Total.
1 Subadar-major - - -	125=125
1 Subadar - - - -	100=100
2 „ - - - -	80=160
4 „ - - - -	67=278
4 „ - - - -	35=140
4 „ - - - -	30=120
	923

3. ADJUTANT-GENERAL'S SCALE.

	Total.
1 Subadar-major - - -	200=200
1 Subadar - - - -	150=150
2 „ - - - -	100=200
4 „ - - - -	100=400
4 Jemadars - - - -	60=240
4 „ - - - -	40=160
	1,350

General Norman does not consider the increase to the Sepoy's pay urgently necessary.

The increase proposed in the shape of good conduct pay.

He considers that the fall in the rate of compensation for dearness of provisions an indication of the general fall of prices, which must affect the Sepoys' homes, and render it easier to support their families. That any increase of price is to be met by the hutting money.

The separation of the Native officer from the rank and file will be as much due to his superior means and way of living as to measures of discipline.

9. I regret very much that General Norman's opinion and mine differ on this point, for it appears to me the most important of all. The raising of the position of the Native officers is of the greatest importance to improve the efficiency of the army, and to keep them respectable in comparison with the employés in civil life ; but an increase to the pay of the Sepoy is almost a necessity of existence.

It is difficult to see how the fact that nearly one-half of the army is under six years' service can be considered otherwise than as a proof that there are not inducements enough to secure continued service in the ranks, even making allowance for the invaliding of the old men who enlisted in 1857.

The old inducements, the priority of hearing in the courts of justice, the certainty of rising to the non-commissioned grade by seniority, and the greater ease of living on the pay of the Sepoy, attracted men of respectable means, and kept the old soldier in the ranks.

Surely the value of the steady experienced soldiers of 10 or 15 years' service, who have acquired an attachment to their officers, and a pride in their regiments, cannot be too highly regarded.

The compensation for dearness of provisions is a temporary remedy for periods of unusual scarcity ; it is an excellent sliding scale to prevent frequent changes of pay ; but it does not by any means cover all the soldier's additional expenses of living, compared with those of a former day. The hutting money seldom or never reaches the soldier's hands ; it is expended under the orders of the commanding officer in supplementing the soldier's own labour in building or repairing his lines, and only meets the rise in the cost of shelter.

The replies of the commanding officers regarding recruiting, show that out of the 45 regiments of infantry and 19 of cavalry that do the ordinary duty of the country, 32 regiments represent difficulty of recruiting or falling off in the physique of the recruits. The corps that attribute the difficulty to their specially unfavourable locality, such as Buxa, are omitted in this calculation. The Hindustani regiments, being now few in number, there should be abundance of the material, unless there is a cause for the difficulty of recruiting which did not formerly exist. The special or class regiments would naturally have less difficulty in filling their ranks than those of mixed composition.

Considering the tenor of these replies, and the average increase shown in the cost of soldiers' necessaries and food, together with the undeniable fact, experienced by all classes, European and Native, and admitted as a just ground for consideration, that the expense of living, generally, has greatly increased, I think there can be no doubt that the time has come when the question of the pay of the Native army must be seriously faced.

In dealing with the old Bengal army the question of pay had much to do in hastening its unhappy end. The call on the Hindustani soldier to cross the Indus led to the unwilling grant of Sindh batta ; and though annexation made no change in the circumstances of service there to to the soldiers, the fact of the Trans-Indus country being included in British territory was assumed as a sufficient reason for withdrawing that allowance.

A close study of the history of the army at that period will show that mismanagement of the question of pay, and irresolution in the maintenance of discipline, arising doubtless from some consciousness of the justice of the discontent manifested, did much towards preparing the army for its final mutiny.

It is a point of the first political necessity to give the soldier no just or reasonable cause for being discontented with his wages ; and next, that there shall be a strong inducement in his pension to secure his interest in the stability of the institutions on which the future maintenance of himself and family depends.

I think that the proposals submitted are not more than what are required to effect these ends.

They have been based on the most careful inquiry from all grades of the army regarding the

defects of the existing systems, and the practical experience of regimental officers. I place the recommendations regarding pay in the following order:—

Free kits 18 rupees on enlistment and 18 rupees after six months -	357,840
Grant in aid of half mounting - - - - -	381,000
Good conduct pay at new rates for cavalry and infantry - -	250,000
Compensation for dearness of provisions to Native cavalry - -	150,000
Hutting money to Native cavalry - - - -	42,000
Increased pay to Native officers of infantry - - - -	112,500
Bands - - - - - - - -	
Colours - - - - - - - -	
Hospital bedding - - - - -	

I consider it very desirable to prevent the necessity of any deductions from the recruit's pay, by allowing the full grant of 36 rupees, which is in point of fact an addition of one rupee to his pay during the first three years of his service, but it would come in this form as a greater boon than if it were given as an additional rupee of pay. The first good conduct pay at the end of three years' service, would then meet the time when the sepoy, having had all the discomforts of soldiering, diminished pay would no longer be one of them, the drill and musketry instruction and the restraints of discipline, has it in his power to take his discharge.

It is to be remembered, that the more men who are induced to remain in the service, the less will be the expense of the recruits.

I now come to the question of the pensions, which has been forced on the attention of the Commanders-in-Chief of the several presidencies, in consequence of the great number of men invalided at about 15 years' service.

If the number of the men, who take their discharge within the period of six years, is not due to any unpopularity of the service, then the increased rates of pension to those who remain between 15 and 40 years will be inconsiderable. If on the contrary the exodus from the service is due to its want of attractions, then the increased rates of pension will at least not cause increased expenditure, because although the rates will be increased, the life of the pensioner will be so much shorter, and there will not be the pay of the man who steps in the 15 years' invalid's place, in addition to the pension of the latter.

The inadequacy of the pensions for the longer periods of service, especially of the distinguished Native officers, is admitted by Sir H. Norman, who has no doubt often felt distress at seeing honoured soldiers, after 30 or 40 years of gallant and loyal service, pass from their full pay, in the decline of life, to a small pittance.

I am inclined to prefer a general increase to all, rather than the limited number of special pensions.

I have suggested to Sir H. Norman, that the question of the pensions should be considered by a committee of selected officers of cavalry and infantry from each presidency to be convened at the Camp of Exercise.

I consider the graduated scale of pension a measure of economy in itself without reference to the possibility of utilising the pensioners as a reserve; that measure might be omitted or limited in extent. The pensioners who came into Lucknow before the siege behaved most faithfully and nobly.

At present thousands of men trained to arms pass annually into the population. The proposed rules are it is hoped calculated to reduce that number, to make those useful who do so pass from the army, if required, and by their periodical intercourse with their officers, and increased pensions, to perpetuate their remembrance of their ties to the service and their interest in the maintenance of order. There is no doubt that there must have been some truth in the excuses made by many pensioners at the time of the mutiny, that they never knew that their services would be accepted.

When the troops were drawn from the Bombay Presidency for Abyssinia, the pensioners who are there settled much more in clusters than on this side of India, expressed to the Pension Paymaster their anxiety to be enrolled for garrison or police service, but the Government of Bombay preferred to increase the police.

When the Native army was reduced to its present establishment, the extent of the reduction was very much influenced by the consideration that the police force under military discipline offered a ready resource for reinforcing the army.

Since that period a change has taken place in the views of successive governments, and year by year the military character of the police has to a certain extent diminished.

The present tendency appears to be towards a reduction of the superior appointments held by military officers, to get rid of the military organization for maintaining discipline, and to assimilate the police to the old constabulary. Thus the supposed ready resource of a disciplined police is diminishing and appears in a fair way of disappearing entirely; therefore a selected body of pensioners, ready to be formed into veteran battalions or companies of any strength that might be required, would appear of more value than would have been the case some years ago when the police was looked upon as a more military body.

The new graduated scale of pensions, however, is by no means inseparable from or dependent on the suggested reserve.

In some degree related to the question of pensions is the proposal for the retiring fund for Native officers, which would add greatly to their comfort and respectability in retirement and would increase the interest of themselves and their connexions in maintaining the stability of the government.

It is believed that it would be popular with most of the present Native officers and might be compulsory with future promotions, if introduced with a simultaneous increase of allowances.

I would recommend that the committee be instructed to consider the proposal.

The points in which my views differ from Sir Henry Norman's are really very few.

The proposals which I have laid before the Government are founded on long experience and the representations of all grades of the army regarding defects in the existing system. The practical experience of regimental officers as communicated by them has been carefully considered.

The proposals should be considered as a whole of which each part is a link binding together a system, which, while retaining the main features of the existing organization, would eliminate undeniable defects, and would hold out prospects of progressive advantages of pay and pension, from enlistment to the end of the soldier's life; while tending to retain him in the ranks as long as he is in the fittest stage for active service, it would still render him useful in his decline; add to his respectability in his home whether he be private soldier or officer, and give him an increased interest in the stability of the British Government.

6th November 1875. (Signed) NAPIER OF MAGDALA.

MINUTE by the HON. SIR ALEXANDER ARBUTHNOT, K.C.S.I.

I REGRET that I am unable to concur in the opinion expressed in the 8th and 9th paragraphs of this despatch that the complement of European officers at present assigned to the Native Regiments is sufficient. A careful consideration of the subject and of the opinions which have been recorded on it, impresses me with the conviction that if the Native army were required to take part in any really serious warfare, a complement of seven European officers would be found insufficient to supply that effective leading and direction which are necessary to prevent disaster. If the Native army were merely intended to serve as a police for the maintenance of order, and for the repression of disturbances in our own territories, or in the Native States which are interlaced with them, then I should be prepared to admit that a complement of seven officers for each regiment is sufficient for any service on which they are likely to be engaged. But if the Native army is to be regarded as an important auxiliary to our British forces, which may be employed in repelling foreign invasion or in making war beyond the limits of India, either in Asia or in Africa, and possibly against a European enemy, then I hold that the present complement of European officers is dangerously small, and that an increase to it is imperatively required. The correctness of this view, as it appears to me, is practically admitted in the 9th paragraph of the despatch, where it is said that it may be a matter of doubt "whether under the circumstances of "very distant service, or if Native troops were engaged in war with the army of a European "power, some increase of junior European officers should be made to regiments;" but then it is argued that the possibility of such a contingency is not a sufficient reason for maintaining habitually a large and expensive complement of officers, the more especially as there are reserves, composed of the officers on the military staff of the army, of those employed in the civil administration, and of those on furlough, which can be drawn upon in time of need. In regard to at least one of these reserves, the military civilians, I would remark that to treat the great body of the officers employed in the civil administration as forming a military reserve is scarcely compatible with the system adopted of late years, especially in Bengal, under which military officers in civil employ have been practically regarded as having no claim to, or prospect of, further military employment, and that looking to a not far distant future, there would seem to be every probability of a great change in the system of employing military officers in the civil administration; that in fact year by year the number of military officers so employed will diminish, and that their places will be filled by members either of the covenanted or of the uncovenanted civil service. What has recently occurred with reference to the alleged grievances of the covenanted civil servants in the North-Western Provinces, and the legislation which took place in 1870 for the purpose of throwing open higher offices in the civil administration to the natives of the country, are, as it appears to me, sufficient indications that the practice of employing a considerable number of military men in civil offices will have to be gradually discontinued.

But I submit that the existence of reserves, however ample, and however valuable as a means of filling vacancies in the established organization, is not a justification for adhering to an organization which requires to be supplemented, and in fact altered whenever the army is called upon to discharge the more serious duties for which it is maintained. It is surely essential to the efficiency of an army that the arrangement of the duties, while it is under training in time of peace, should be that which is best adapted for war. I do not advocate, nor, so far as I am aware, do any of the opponents of the present system advocate, a return in its entirety to the system which obtained before the mutiny. I have no doubt that the proportion of European officers was at that time as unnecessarily large as it is now, in my humble opinion, unduly small; and there were other evils connected with the old system, in regard to the existence of which there is a very general consent. Nor do I recommend any alteration for the worse in the position which has been assigned to the Native officers of late years. There is, as it appears to me, very great force in the remarks made by Lord Napier that it is very desirable "to afford some room for the Native soldier to aspire to "a higher and more respectable position," and politically it would be very inexpedient, except on the strongest grounds of proved necessity, to resort to any measure which would imply degradation or distrust of the Native officers of the army. All I contend for is, that while leaving to the Native officers the command of their troops and companies, the complement of European officers should be so far augmented as to enable them to exercise a really effective supervision.

It must not be forgotten that since the present organization was framed, an important change has taken place, in the great improvement which has been made in weapons of precision, and

which renders it impossible to adhere to one of the leading ideas of the present organization, viz., that the European officers should all be mounted officers. This is now impossible in action, and the ability of the European officers to move rapidly from point to point has *pro tanto* been diminished. This, it appears to me, is a most important consideration, materially affecting the question of the sufficiency of the present complement of European officers, and pointing, in my humble opinion, unmistakeably to the necessity for an increase. It is perhaps impertinent in a civilian to suggest what the precise increase should be; but I venture to think that a good solution of the question is furnished in the modification of Sir Charles Staveley's scheme, suggested (though not recommended) by Sir H. Norman in the 58th paragraph, chapter I. of his minute of the 11th October last. The organization here referred to would give eleven officers to each regiment of Infantry, and it has, as I think, a great advantage over the present organization, in that it assigns to the European officers below the commandant more limited bodies of men to command on parade and in action. Under this organization a regiment of Native Infantry would be divided into four double companies, instead of into two wings, as at present. Each double company would be under the direction of a European Captain or field officer, aided by a European Subaltern, the command of each company or half double company remaining as at present, with the Native officers. In the Cavalry an addition of two European officers to the present complement would seem to be desirable so as to admit of two European officers being assigned to each squadron. Here the considerations are different from those which apply in the case of the Infantry, but they are not less cogent. The principal role of Cavalry being to cover the advance of a force, to conceal its movements as far as practicable from the enemy, and at the same time to obtain the fullest possible information of the enemy's movements; it is often broken up into small parties, and ignorance or irresolution, or want of influence over his men, on the part of the leader of any one of those parties, might go far to mar the success of the best planned operation.

(Signed) ALEXR. J. ARBUTHNOT.

The 2nd March 1876.

MINUTE by Colonel the HON. SIR A. CLARKE, R.C., K.C.M.G., C.B.

I HAVE signed this despatch, because there are contained in it recommendations of minor details in which I concur and which I hope to see adopted, and also on the understanding, admitted in the body of the despatch, that the existing organization, which it must be remembered has hitherto been only tentative, which has not yet borne the strain of a protracted contest, but which it is proposed to perpetuate and consolidate, is applicable to the ordinary exigencies of Indian service.

I am, however, unable to reconcile the two leading principles on which this organization is based, namely:—

(1.) The disassociation or isolation of the officers from the regiment, and
(2.) The limiting the number of those officers to a strength just sufficient for the administration of the regiment, leaving the leadership of the troops and companies to the Native officers, who, as a rule, are of the same status as the rank and file,

with the now almost universal practice, the result of experience and followed in all armies, and which consists in sustaining the regimental system, the officers being an integral portion of each regiment, in class of a separate and higher social scale, and in numbers sufficient to guide, lead, and control the men when in action.

Accepting then that this organization is sufficient for Indian service—and I only accept it in deference to the mature experience of my military colleagues—I seek by this dissent to record my misgiving that if ever that organization is exposed to the vicissitudes of active warfare, it will be found defective.

A novel experiment, when a majority of those directly connected with it have more or less benefited by it, will be attended in its early stages with a certain apparent amount of success, and that success will be naturally quoted as evidence in its favour; but even admitting the success which it is asserted has followed on the creation of a Staff Corps, manifesting itself, it is said, in the better economy and discipline of the regiments of the Native army, are these grounds for confidence that men who enter that Staff Corps in the hopes of securing one or other of the prizes and special appointments which its very name indicates, will rest content with the relegation to regimental duties, or that they will bring to their work those special qualities which make the regimental system of such value in the formation of an army?

Admitting that the Native officers have much improved of late years, and that they may still more improve with the proposed increase to their pay and with the higher social status now proposed to be accorded to them, yet it must not be forgotten that they will still have risen from the same strata as the men whom they have been taught to drill, to command, and to direct, and to that they are neither by birth, nor by special qualities, natural chiefs and leaders, and further that discipline, ever precarious and perhaps irksome, can never evoke that confidence and obedience which can only be insured by cherished traditions or by hereditary prestige.

It is perhaps possible that the time may come when those who would form the natural leaders of the masses in India may seek the career of arms, and educated for the trust under our standard, may then at once assume their natural position; but that time has not yet arrived, nor, as far as I can learn, is there any indication of its arrival; so that we must still trust to our Native army being recruited both for those in and out of the ranks from the same class as at present, and to a very great extent to service being taken with the only object of its being a means of livelihood.

If then this be so, is it prudent to apply to an army, less intelligent and less self-reliant, a principle which no one would venture to suggest should be applied to a European or American

force? Are not the non-commissioned officers of these latter, as a rule, far more fitted to lead their comrades than the Indian officers selected from their fellow peasants and labourers?

It is no doubt true that in Indian as in Western armies, men so selected have done right well, and have shown qualities eminently fitting them for leaders, but these instances are conspicuous by their very rarity. On the other hand, how often has in all armies the same tale had to be recorded of regiments having lost a large or disproportionate number of their officers, and of their having had to retreat sometimes perhaps in good order, but too often in confusion and disorder, demoralized by this very loss!

The authors of the present organization have limited its application to the necessities of Indian service, and would hesitate to ask its extension or even to adhere to it, were it to be exposed to contact with an enemy's organization based on natural leadership, or were it to be confronted with all the strains of a campaign against a European force differently officered and directed. Were it so exposed, there might arise, and possibly there will arise, instances when, as I believe has already occurred, a brigade consisting of Indian and British regiments and opposed to a purely Native force, has been compelled to retire rather broken than otherwise owing to the loss of officers on the part of the Native regiment which in the hour of supreme trial was thus unsupported. Indeed it is to the thorough efficiency of troops in this their last test, that the organisers of any army must look, and not to the symmetry of a force in a march past or to its internal economy and well-kept books and accounts, subjects which no doubt formed the theme of Inspecting Generals before 1857, just as much as they do now.

I do not forget the service that certain irregular troops, with only an Englishman or two to lead them have rendered; but this was due to the personal relations which existed between the leader and his followers. By the present system of placing between the English chief and the soldier the Native company officer, that direct influence has been destroyed which, as a German military writer has said, may indeed engender "a feeling of hatred, but in most cases engenders "one of love, confidence, and respect between his captain and the individual soldier"—a feeling which, to quote the same author, "is the corner stone of an army and not one of the least firm "ones."

Nor am I forgetful of the fact that changes in an alien and mercenary army ought to be approached with caution, and that to deprive or diminish in the existing Native force the position or privileges of their present company leaders, might be attended with the danger of creating disaffection. But this is far from my intention. I wish indeed rather to better the position of the Native company officer and to give him such means as will enable him to enjoy those privileges. But what I ask is that until we shall have established—and I fear the time is not yet near—such relations between us and the subject races of India that we may confide to their native leaders the command and control of the men composing the tactical unit of a regiment—the troop or company I mean—this tactical unit (as on its use or abuse all modern warfare relies for victory or courts defeat) may have ever ready as its guide and pilot a European officer, the whilom leader whom conquest has given, in the absence of their natural leaders, to the men of a subject race.

With the re-establishment of a normal relation and proportion between officers and men must follow the recognition in its entirety of the regimental system and the consequent gradual absorption and disintegration of the staff corps; so I will not burden this minute with any remarks on a system which irresistibly tends to subordinate the value of the regiment as the first and most important field of a true soldier's duty, and which makes short service under the colours a mere stepping stone to more lucrative employment in the political or civil service.

In calling in question either the judgment or the experience which would advise that the large proportion of officers in a Native regiment should be selected from its ranks and from a class low in the social scale, and in further advocating a return to the almost universal practice which is followed in all other armies of having as a rule the officers taken from the higher and dominant sections of society, I do it in no spirit of sycophancy, or as claiming for the accidents of wealth and birth the prerogative of authority and command. I rather do it in order to draw attention to what is apparently the fact—whether for good or for evil it is beyond my province here to discuss—that this preference for an exclusive and privileged caste appears to be in obedience to a natural law, and where from political or economical reasons it has been disregarded, sooner or later disaster in some form or other has followed its violation.

Nor need any anxiety be felt lest by an increase of European officers to a regiment, and especially of junior European officers, the Native officers, and still more important the Native soldier, would take exception or would call in question such a course. As well might it be feared or suspected that the veterans of a British regiment see in their newly joined ensigns or sub-lieutenants a reproach on their discipline or valour. In the one case as in the other, the men would recognize a prudent provision for the exigencies of their own special work in the presence of such officers.

(Signed) A. CLARKE.

The 4th March 1876.

MINUTE by HIS EXCELLENCY THE VICEROY.

1. I desire to make a few observations upon the Military despatches which were sent by the last mail.

2. The question of the organization of the Native army, and especially of the propriety of maintaining the Staff Corps, has come constantly under my notice from the time of my arrival in India four years ago. During those four years I have omitted no opportunity of obtaining the opinions of officers of all ranks who have served with the different forces in India. I had, more-

over, the advantage of a previous knowledge of the discussions which took place when the Indian armies were reorganised after the mutiny, having served at that time as Under Secretary of State for India.

3. After my arrival, and during my tour through a large part of India in the autumn of 1872, I often heard it said that the condition of the Native army was in many respects unsatisfactory. It was said that a feeling of discontent existed amongst the British officers of the Madras and Bombay armies, and that it extended, in a modified degree, to the Bengal army—that the British officers were too old, and that the excessive number of those of the higher ranks created a stagnation of promotion—that throughout the Armies of the three presidencies the feeling of regimental *esprit de corps* was impaired, and that in the Madras Army it was almost extinct—that the operation of the Staff Corps system was in many respects defective—that many of the Native Officers were of an age which unfitted them for active service, and that few of them had any pretensions to being able to command their companies in the field—and that the pension rules operated so as to encourage the retention in the ranks of Native officers, non-commissioned officers, and soldiers who were unfit for active service.

4. I soon found, however, that considerable difference of opinion existed amongst the best authorities as to the merits of the present organization, and, among those who thought that defects existed, as to the remedies which should be applied to meet them. The elements of which the Native Army is composed, and the great variety of considerations—some political, some purely military—which have to be borne in mind, render the subject one of peculiar difficulty and delicacy. It seems to me better that improvements should be deferred for a time, rather than that a rash hand should be laid upon any part of the military system.

5. In the meanwhile two important measures concerning the Native army were initiated, and have now been carried into effect.

6. It had been decided by the Duke of Argyll in 1869* that the Native troops should eventually be furnished with breech-loading arms. It became necessary to carry this measure into effect without further delay. The breech-loader was fast approaching India. The King of Burma had applied for breech-loading machinery. The Ameer of Cabul had asked the Government of India to facilitate the supply of breech-loaders to his army. When complications arose with the Turks in the neighbourhood of Aden, we learnt that the Turkish troops, against whom, in the event of hostilities, our regiments armed with muzzle-loading rifles would have been opposed, were armed with breech-loaders. Under these circumstances, the Government of India decided to commence the issue of breech-loaders to the Native army.

* Despatch from the Secretary of State, No. 51 of February 25th, 1869.

7. The other improvement which was carried into effect was a modification of the rules under which officers were allowed to retire from the Staff Corps. This was in itself desirable for the reasons given in the two despatches† quoted in the margin. From circumstances to which I need not here allude, there were many more officers of high rank and long service in the Staff Corps than could usefully be employed. There was every danger of a stagnation of regimental promotion, and of a serious deficiency in the proportion of young officers. This condition of things had been frequently represented to the Home Government by the Government of India during the tenure of office of Lord Lawrence and Lord Mayo, and some scheme of retirement had been strongly advocated, but hitherto without success.

† No. 122 of June 9th, 1873.
No. 42 of February 13th, 1874.

8. I entirely agreed with this opinion. In June 1873 the subject was, therefore, again earnestly pressed upon the attention of the Secretary of State, and a plan was recommended under which officers might commute their expectations of receiving the colonel's allowance.‡ After some correspondence the Secretary of State signified his assent to this proposal in May 1874. The number of applications exceeded the maximum limit of 90 which was at first laid down. The offer was renewed in the year 1875, and will be repeated again this year.

‡ Despatch to the Secretary of State, No. 122 of June 9th, 1873.
Despatch from the Secretary of State, No. 259 of December 8th, 1873.
Despatch to the Secretary of State, No. 42 of February 13th, 1874.
Despatch from the Secretary of State, No. 94 of May 7th, 1874.

9. The effect of these retirements has been most beneficial. The number of unemployed officers has been greatly reduced, and is no longer a source of embarrassment excepting in Madras. The feeling of discontent to which I referred in the 3rd paragraph of this Minute has, I believe, almost entirely ceased to exist.

10. This measure, which I looked upon as an essential preliminary to any changes of organization affecting British officers, having been successfully put into operation, the circular letters of February and March 1875 were written for the purpose of obtaining, in an official shape, the opinions of Lord Napier of Magdala and those of the Commanders-in-Chief of Madras and Bombay upon the other subjects relating to the organization of the army. Their replies have supplied an amount of information relative to the three armies which will, I trust, admit of the proposals we have now made being dealt with finally by Her Majesty's Government without further reference to India. I wish to express my deliberate opinion that it is of essential importance that Her Majesty's Government should now give such a decision upon the future of the Native army as will assure all concerned that great organic changes are not to be expected, and that the system now decided upon will be maintained.

11. There is a general agreement upon the necessity of the improvements which we have proposed in the condition of the Native soldier. I will only say that their cost, considering the importance of the object, is trifling; and that I trust there will be no hesitation in carrying them into effect. It is not wise in the case of any army to permit the condition of the soldier as regards his pay to become deteriorated, and to wait until complaints arise before applying a remedy. The composition of the Native army in India gives great additional force to this consideration.

12. It seems to me to be highly desirable that, if possible, some stability should be secured for the system which has been followed by Lord Napier of Magdala since he has been Commander-in-Chief of the Bengal army, of promoting officers in the same regiments, so that regimental *esprit de corps* should be maintained; and that the same system should be extended to the armies of Madras and Bombay, now that the principal difficulty which has hitherto been found in the application of this system, viz., the claims of officers who, owing to reductions and other reasons, were unemployed, has been greatly removed by the operation of the new scheme of retirement. I believe that the regulations which we have recommended will secure the object we have in view.

13. I consider the provision which we have recommended for the retirement of officers from regimental appointments is essential to the future efficiency of the Native armies of India. The dead level of age which generally exists in the regimental officers who fill the higher grades, especially in the Madras army, makes it, in my opinion, hopeless to expect any improvement without some such system of retirement.

14. In Appendix P. to the Adjutant-General's letter of the 14th of August will be found returns of the length of service of officers employed in regiments on the 1st of April 1875. In four cavalry and 40 infantry regiments of the Madras army—

1	Commanding	Officer	was of 29	years' service.
1	,,	,,	31	,,
2	,,	,,	32	,,
8	,,	,,	33	,,
8	,,	,,	34	,,
8	,,	,,	35	,,
8	,,	,,	36	,,
6	,,	,,	37	,,
2	,,	,,	38	,,

That is to say, supposing an officer to enter the service at 18, there were only two officers of less than 50 years of age.

The seconds-in-command were nearly as old—

2	Seconds-in-Command		were of 29	years' service.
9	,,	,,	30	,,
10	,,	,,	31	,,
7	,,	,,	32	,,
14	,,	,,	33	,,
2	,,	,,	34	,,

That is to say, the youngest second in command was about 48 years of age, and more than half the whole number were over 50.

It is needless to examine the list further, for the effect has of course been that the wing officers are of much higher rank and greater age than is desirable, while there are many squadron and wing subalterns of 18, 19, and 20 years' service. The condition of the Bombay army is not much better, and the inducements which the present regulations regarding the succession of officers to colonel's allowances hold out to officers to remain serving must, if not counteracted, produce the same result eventually in the Bengal army.

15. Upon this subject I will say no more than that I believe the regulation we have proposed is sufficiently guarded to prevent any serious hardship to officers of old standing who are now serving, whose interests we have desired to consider so far as was compatible with the essential interests of the service.

16. The other important questions dealt with in these despatches are the advantage or disadvantage of the Staff Corps as a means for supplying British officers for service in India, and the number of British officers who should be attached to Native regiments. I treat the questions as separate, because the number of officers attached to regiments might be increased or decreased without making any change in the constitution of the Staff Corps.

17. I will say, briefly, that the difficulty of devising a scheme of regimental promotion which will give the same average rate of advancement as that which prevails in British regiments is so great, the vested interests which would be affected by abolishing the Staff Corps are so large, and the inexpediency of making a second organic change in the system of supplying British officers to the Native army is so evident, that I trust and believe that no proposal for abolishing the Staff Corps and establishing a regimental system in its place will be seriously entertained.

18. The minor question, namely, what number of British officers should be attached to Native regiments, is one upon which high authorities differ. For my own part, looking at the weight that should be given to the opinions of Lord Napier of Magdala and of Sir Henry Norman, confirmed by the high efficiency of the Native army of Bengal and of the Punjab frontier force, I am satisfied, so far as I can form an opinion upon so professional a subject, that the system of placing Native officers in command of troops and companies with a moderate staff of British officers to each regiment is as good a system as can be devised for the Bengal army and the Punjab frontier force. The material of the Bombay army is so similar to that of Bengal that I cannot understand why a system which succeeds in the one should be inapplicable to the other. Lord Napier of Magdala has commanded both armies, and considers that the system is equally applicable to both.

19. The only doubt which I have entertained regards the application of the system to the Madras army. The opinion of the Commander-in-Chief of that army is decidedly unfavourable to its operation, and the circumstances of the Madras army differ considerably from those of the other Indian armies. If the question had been before me, whether the old regimental system of

the Madras army should be maintained with some modifications or changed into the present system under which the Native officers have been advanced to the command of troops and companies, I should have hesitated to make the change. But this is not the question we have now to determine. We have to say whether the new system has so far failed as to make it necessary to reduce the Native officers to their old position and pay, and to increase the number of British officers in the regiments. I do not think the new system has up to the present time had a fair trial in the Madras army. The Commanders-in-Chief in Madras have loyally and to the best of their power endeavoured to make it work smoothly, but circumstances were against them. It is only necessary to read the opinion of Sir Frederick Haines as expressed in Brigadier-General Stewart's letter to the Madras Government of the 3rd of April last to feel convinced that no system, however excellent, could have satisfied an army placed in the condition in which the Madras army has been placed mainly from unavoidable circumstances.

20. From that letter we find that the reduction of regiments produced a large supernumerary list of officers of high rank, whose employment was a necessity, and made regimental promotion impossible.

"The present great and ever increasing proportion of senior to junior British officers in the Native army is most injurious. Colonels and Lieutenant-Colonels hold the wings. Three or four Majors have officiating wings, and with two or three exceptions old Captains are Subalterns. There are no young officers coming on—no candidates to fill the number (upwards of 30) of permanent and officiating appointments now vacant. The well-being of an army depends much upon an assured source of supply of young officers; the army of Madras does not possess this, and it is a vital question how to provide it.

"The age of the seconds in command and wing officers is also becoming a serious matter, and cannot fail to be detrimental to efficiency."

The Native officers are described as old and "without life or energy."

21. It seems to me that no new system could have succeeded under such circumstances as these, and it is rather to the credit of the present organization that the reports show that in no material point the Madras Native army has fallen off in efficiency. The evils pointed out by Sir Frederick Haines will be gradually removed if the proposals we have made should be approved by Her Majesty's Government. It is wise in my opinion before introducing a new system of organization into the Madras army to wait and see how the present system will work, when the causes which must have been fatal to thorough efficiency under any system have been removed. Sir Frederick Haines will in a few months become Commander-in-Chief of the Bengal army, so that the Government of India will be able to avail themselves of his knowledge of the Madras army in introducing such improvements as may be required into that army. For these reasons I came to the conclusion that it was not expedient to make the Madras army an exception to the system which we have unhesitatingly recommended for the armies of Bengal and Bombay.

22. I wish to take this opportunity of correcting the mistaken impression, which, to judge from their minutes, Sir Alexander Arbuthnot and Sir Andrew Clarke entertain that we have recommended a system, not because we think it in itself the best, but as a kind of compromise, and as sufficient for the sort of work which the Native army will have to perform. This is not so. We have deliberately recommended the present organization of Native regiments not as a makeshift, not as suited to one sort of service and unsuited to another, but, so far as we can judge, as an organization suited to war as well as to peace, as greatly superior to the old regular system that prevailed before the mutiny, and as better than any modification of that system which has hitherto been suggested for our consideration.

23. Sir Alexander Arbuthnot has remarked that his opinion that the number of British officers is dangerously small, is practically admitted in the ninth paragraph of our despatch, where it is said that it may be a matter of doubt "whether under the circumstances of very "distant service, or if Native troops were engaged in war with the army of a European power, "some increase of junior European officers should be made to regiments." But we added the following words:—"Such as we believe to have been occasionally made in the strength of officers "of British battalions proceeding on foreign service." Such an addition under special circumstances to meet casualties can with no greater justice be brought forward to prove that the establishment of officers in Native regiments is inadequate, than the addition made to the strength of officers in British regiments serving in India can be advanced as a proof that British regiments at home are not sufficiently supplied with officers.

24. Sir Andrew Clarke in his general remarks appears to me to have misapprehended one of the main objects of our proposals. We have endeavoured, while leaving the Staff Corps as a general list for regulating promotion from rank to rank, and pay within certain limits, to make regulations whereby advancement from grade to grade in each regiment shall go regimentally, so that an officer once appointed to a regiment shall feel that the regiment is his home, and the regimental *esprit de corps*, which is one of the most admirable characteristics of the British army, may, so far as circumstances admit, be encouraged in the Native army of India. Sir Andrew Clarke thinks that the organization we recommend is "a system which irresistibly tends to sub-"ordinate the value of the regiment as the first and most important field of a true soldier's duty, "and which makes short service under the colours a mere stepping-stone to more lucrative "employment in the political and civil service."

25. These words, as is well known to those who took part in the discussions of the time, describe with perfect accuracy the old regular system which prevailed in the Bengal army before the mutiny, when there were large cadres of British officers attached to regiments and many absentees in civil and other employments which held out the inducement of higher pay. This is the system which the Staff Corps was designed to remedy. The number of officers on the regimental cadres was reduced, and their pay was increased, while at the same time the number of civil and political appointments for which officers are eligible has greatly diminished. The

result has been very successful. I can state with a complete knowledge of the facts of the case that "short service under the colours" is not now looked upon "as a mere stepping stone to more "lucrative employment in the political and civil service." Most of these appointments are in the gift of the Governor General. In the four years for which I have held office I have appointed 12 officers to civil and political appointments. Of these four belonged to the Madras and Bombay armies, leaving 8 who belonged to the army of Bengal. The number of captains and subalterns in the Bengal Staff Corps is 539, and a comparison of these figures will show how little such appointments can have affected the general views and prospects of officers who join the Staff Corps. But I will also add that I have no reason to believe that there is any such feeling as Sir Andrew Clarke supposes on the part of officers. I do not think that there is any general desire to leave regiments for civil or political employ,—I judge by the number of applications I have received, which has been exceedingly small, and by the soldierly spirit and pride in their regiments which I have generally noticed in the young officers of the army whom I have seen since I have been in India.

26. The other observations contained in Sir Andrew Clarke's minute seem to me to have been fully noticed in the Adjutant-General's letter and the minutes of Sir Henry Norman.

March 17th, 1876. NORTHBROOK.

Military, No. 214.

To His Excellency the Right Honourable the Governor General of India in Council.

MY LORD, India Office, London, 10th August 1876.

Para. 1. I HAVE received and considered in Council your Lordship's Military Letters, Nos. 52 and 94, dated 3rd March and 11th April respectively, submitting for sanction certain measures which appear to you to be necessary for the improvement of the condition of the Native Army.

2. They are as follows:—

Estimated at an increased Annual Expenditure of Rs.	
2,27,700	I. Grant of Rs. 30 in aid of kit to each recruit of infantry and sappers.
3,35,260	II. Grant of Rs. 4 annually to non-commissioned officers, drummers, and privates of infantry and sappers.
2,50,000	III. Improved rates of good conduct pay to Native troops, except Bombay cavalry.
3,58,500	
1,00,000	IV. Increased rates of pay to Native officers of infantry and sappers.
5,000	V. Extension of rules for granting compensation for dearness of provisions to Native cavalry.
Total - Rs. 12,76,460	VI. Cost of blankets for the sick annually.

The total cost of these measures thus becomes Rs. 12,76,460.

3. Each of them appears to have been very carefully considered, and I concur in the conclusions at which you have arrived as to their necessity.

4. The total amount, you observe, appears large, but considering that its object is to meet wants of an urgent nature, and which are not likely to pass away, and that it will, you believe, place the Native Army on a footing of contentment, you cannot grudge the expenditure, and would greatly regret that the grant of these advantages should be postponed until the service has lost its popularity, or until circumstances become such as to force us to give them with less good effect than would now attend their bestowal.

5. A consideration of your proposal respecting the increase of pay to the Native commissioned ranks, the aggregate cost of which is estimated at Rs. 3,58,000 per annum, will be deferred for the present, with reference to the opinion expressed in the second paragraph of your letter (No. 52) under acknowledgment.

6. The remaining five proposals, involving an estimated cost of Rs. 9,17,960 per annum, are sanctioned, and I authorise their adoption and promulgation as soon as may be found practicable and convenient.

7. I also approve of your proposal to sanction the introduction of colours and bands into regiments of Native infantry.

8. In according my sanction to the increased charge these measures will involve, I have not overlooked the necessity that exists for avoiding, more particularly at the present time, all additions to the public expenditure which are not urgently called for. It is only the strong sense that I have of the policy of acceding to your requests in this case that has satisfied me that this sanction should now be given, and it should become an immediate object of your attention how best, by economy in other directions, to replace, at least to some extent, the expenditure thus authorised.

I have, &c.
(Signed) SALISBURY.

No. 52 of 1876.—Military Department.

To the Most Honourable the Marquis of Salisbury, Her Majesty's Secretary of State for India.

My Lord Marquis,

In continuation of our despatch No. 51 of this date, we now proceed to address your Lordship with respect to measures considered desirable for the improvement of the Native Army. These proposals are, with one exception, quite apart from any question of organisation; at least we do not contemplate that any change is possible which would render the proposals we shall have the honour to submit at all less desirable than they now are.

2. The one exception is as respects the Native Officers of Infantry, and our proposals to improve the position of this very important class, are based on the assumption that troops and companies will continue to be commanded by them as at present. Under a system by which Native officers would be simply Subalterns of troops or companies commanded by European officers, we should not be prepared to recommend the increased advantages we shall presently propose. For reasons given, however, in a separate despatch which deals with the organisation of Native Regiments, we cannot recommend any departure from the system deliberately laid down 15 years ago, and under which the great bulk of the regiments of the Bengal Army and eight of the Bombay Army have existed ever since they were raised, and which has been in force in the whole Native Army for several years.

3. Opinion seems to be unanimous that the pay of the sepoy does not now possess the attractions it did some years back, and that while the work required of the sepoy is more severe, owing to the higher degree of instruction imparted to him, he is in many places in hardly as good a position as a labourer. Indeed, as will be seen from the papers enclosed in our despatch No. 51 of this date, the whole condition of the sepoy requires amelioration; but we have felt that great difficulty may arise now and hereafter, if we propose an actual addition to the pay of the rank and file of the Army, and we prefer to recommend that assistance be given in other shapes than that of pay, and in proportion to the needs of the different classes.

4. Taking the proposals we desire to make in the order of importance we should assign to them, we first have to propose a grant of 30 rupees in aid of a free kit to each recruit of the Sappers and Miners, and Native Infantry. It appears that the kit costs on an average about 36 rupees in Bengal and 35 rupees in Bombay, which has to be paid by the recruit by monthly deductions of two rupees, and during the long period for which these deductions last the recruit is in a state of real poverty.

5. It thus seems to us to be most necessary towards encouraging enlistment among eligible classes, to put the recruit in a better position than he is at present and we prefer a money grant in aid of purchase of kit to a grant of the kit itself, as more conducive to economy and as tending to preserve the important principle of leaving Native regiments as independent as possible of the aid of Government departments. The grant would meet about five-sixths of the average cost of the kit, leaving the balance of about rupees six to be deducted from the sepoy's pay

during his first 18 months of service. The kit would be supplied gradually, according to the present usage, under the superintendence of the commanding officer, who would draw the allowance as required.

6. It appears that taking the average of the years 1871, 1872, and 1873, it may be assumed that 7,590 recruits are enlisted annually in the infantry and sappers, in the following proportions:—

Bengal - - - - - -	3,578
Madras - - - - - -	1,262
Bombay - - - - - -	1,318
Punjab Frontier Force - - - -	1,432

and the cost of this proposal may thus be estimated at Rs. 2,27,700 per annum, but as there is some doubt whether the average cost of the kit of the Madras recruit is quite as much as it is in Bengal and Bombay, we are making further inquiries, and if we find it really costs less than Rs. 30 for a complete kit, we would consider whether the grant in that presidency should not be proportionately reduced.

7. The next proposal is to reduce the periods at which good conduct pay is granted, and to give a third rupee for good conduct in the infantry and sappers and miners.

At present in the Bengal cavalry, an additional rupee monthly is given after six, a second after 10 and a third after 15 years. In the Bengal, Madras, and Bombay sappers and miners, and infantry, and Madras cavalry, there are but two rates of good conduct pay; one given after six and the other after 10 years' service. We accept the reasons assigned by the Commander-in-Chief for giving to all alike one rupee after three years, a second after nine, and a third after 15 years' service, under the conditions of good conduct that now exist. We are convinced that this boon will have a most valuable effect as benefiting now or prospectively the great bulk of the soldiers of the army, and that it will operate strongly in preventing trained soldiers of three years' service and upwards from taking their discharge, as they now do a considerable extent in Bengal.

8. In this proposal, we have not included the Bombay cavalry, for on the reorganization it was settled that the sowars of that branch of the service should receive the highest rate of pay, namely Rs. 30 a month, on entering the service, and this sum includes the highest rate of good conduct pay given to sowars elsewhere.

9. The cost of this proposal must necessarily vary somewhat from year to year, but on the best data available, it is estimated by our accountant general in the Military Department at Rs. 2,50,000 yearly.

10. Our third proposal is that a grant of four rupees per annum be made to every non-commissioned officer, drummer, and sepoy in the sappers and infantry, in aid of the cost of his half mounting. The practice is for the recruit to pay for the various articles of kit required to be possessed by him according to the regulations of each presidency. Subsequently these articles have to be maintained at the cost of the soldier by deductions that must not exceed 12 rupees annually, but which usually fall somewhat short of that amount.

11. We have no objection to offer to the principle of these deductions, but we would relieve the soldier of a portion by granting four rupees annually towards them—still limiting the total yearly expenditure to the present sum, including the Government grant-in-aid. It will be seen that the measure is urged by the Commander-in-chief, and we strongly support His Excellency's views in this matter, but we do not think it will be necessary to give the allowance in the first 18 months of service. The kit first supplied to the recruit in the manner proposed in paragraph 5 should render it unnecessary for him to require any more articles during his first year and a half of service, and if any deductions may have to be made they will be trifling. We therefore recommend that this allowance should not be given to soldiers of less service than a year and a half, and the cost of the proposal thus restricted is calculated to amount to Rs. 3,35,260 per annum.

12. The fourth recommendation we have to offer is for the improvement of the position of Native officers. We can add little to the representations made by the Commander-in-Chief in India on this subject, save that we entirely concur in them, and think it of the first importance to secure that there shall be the highest

possible standard of efficiency and respectability among the Native officers of the army, and we think that an important step towards this is to give them emoluments which will place them in a position quite apart from the non-commissioned officers and soldiers with whom, in most cases, they have been previously associated, and enable them to meet their necessarily enhanced expenses, as well as in special cases to secure the entry direct of qualified native gentlemen, a practice now resorted to from time to time in Bengal, when suitable candidates offer.

13. No measure of this kind seems necessary in the Bengal or Bombay Cavalry, the pay of the Native officers having been, at the reorganization of the Army in 1861–62, pitched at a rate sufficiently high to render their position an object of ambition. The rate of pay of the Native officers of the Madras Cavalry would of course be regulated according to the decision to be arrived at as to whether that branch of the service becomes Silladar or remains on its present footing, with horses the property of the State. In the former case, the Native officers would receive the authorised pay for Native officers of Silladar Cavalry, and in the latter, we would propose such increase as would maintain the proportions between the pay of the Madras Cavalry and the Native Infantry. This, however, will form the subject of a separate communication.

14. What we would propose then is that the jemadars of infantry and sappers and miners be divided into two classes of equal numbers as at present—the lower class to receive Rs. 40, and the upper Rs. 50 per mensem, instead of the present rates of Rs. 30 and Rs. 35; and that the subadars who are now in three classes, four in each regiment drawing Rs. 67, two Rs. 80, and two Rs. 100 a month, be divided like the jemadars into two equal classes at Rs. 80 and Rs. 100 a month respectively—the subadar-major's allowance being increased from Rs. 25 to Rs. 50 a month.

15. We do not think that the rates suggested are too high to secure the objects we have in view, and we especially desire to raise the position of the subadar-major, who ought always to be the first Native soldier in the regiment, one in whom the Commander should thoroughly confide, and to whom all the regiment should look up. We would continue the privilege granted to subadars-major on leaving the effective branch of the service, of continuing to receive what is styled the brevet pay of his rank, but at the enhanced rate, whenever that boon is recommended by the Commander-in-Chief; and the system of advancement to the higher classes of Native officers, or of removal to a lower class by the commanding officer, should continue as at present.

16. The cost of this measure is estimated by Mr. Kellner at Rs. 3,58,500 per annum.

17. The last important measure of expense that we desire to propose to improve the condition of the Native Army, is the extension of the rules allowing compensation for dearness of provisions to the Native Cavalry of Bengal and Bombay. It is given to all other branches of the service, and it seems inexpedient to deny it to the cavalry, merely because, under certain circumstances, they receive compensation for dearness of forage. We are aware of instances of great hardship to cavalry soldiers serving at expensive places, and it is difficult for them to comprehend why they are barred from an alleviation for high prices of food which is granted not only to the infantry soldier, but even to the public followers of their own regiments.

18. We call your Lordship's special attention to the representation made on this subject by the Commander-in-Chief in India in the Adjutant-General's letter of the 23rd June 1874, No. 1688, which is an enclosure to this despatch, and we strongly recommend this measure to your Lordship's approval.

19. Its cost depends on seasons and prices; but on the advice of our accountant-general in the Military Department, we estimate it at about Rs. 1,00,000 annually.

20. Finally, we support the proposal of Lord Napier of Magdala, to allow an issue of blankets for use in special cases of sickness, to the extent of five per cent. of the strength of corps. Blankets are allowed in Madras, and the extension of the system which we recommend to the armies of Bengal and Bombay involves a first outlay of Rs. 10,000, and the expenditure of about half the same sum every year.

21. To recapitulate, our recommendations for the improvement in the condition of the Native soldier and the cost of each are as follows, placed in the order of importance which we assign to each:—

I.	Grant of Rs. 30 in aid of kit to each recruit of infantry and sappers - - - - - - Rs.	2,27,700
II.	Grant of Rs. 4 annually to non-commissioned officers, drummers, and privates of infantry and sappers - - - Rs.	3,35,260
III.	Improved rates of good conduct pay to Native troops, except Bombay cavalry - - - - - Rs.	2,50,000
IV.	Increased rates of pay to Native officers of infantry and sappers - - - - - - Rs.	3,58,500
V.	Extension of rules for granting compensation for dearness of provisions to Native cavalry - - - - Rs.	1,00,000
VI.	Cost of blankets for the sick annually - - - Rs.	5,000
	Total - Rs.	12,76,460

22. This sum may at first seem large, but when we consider that it is applied to an army of 123,000 men, that it is to meet wants of an urgent nature and which are not likely to pass away, and that it will, we believe, place the Native Army on a footing of contentment, we do not grudge the expenditure, and we should greatly regret that the grant of these advantages should be postponed until the service had lost its popularity, or until circumstances became such as to force us to give them with less good effect than would now attend their bestowal. We therefore most earnestly solicit the approval of your Lordship to our giving the advantages we propose, even at the hazard of some slight financial inconvenience.

23. In our despatch No. 2 of 7th January 1876, we recommended that an allowance for a Jemadar adjutant should be given in the Bengal Infantry, as is the practice in Madras and Bombay. We therefore do not here allude to this proposal of the Commander-in-Chief. The cost, it will be recollected, was to be met by savings proposed elsewhere in the same despatch.

24. Before concluding this letter, we have to advert to the Commander-in-Chief's proposal to issue colours to regiments that have not received them, and to allow bands to be established in all Native Regiments. The first proposal only applies to corps raised since 1857, it having been soon after the mutiny arranged by this Government not to allow colours to corps that did not possess them. This is believed to be felt to be a hardship; and as it is desirable to encourage a proper *esprit de corps*, we have not hesitated to withdraw our prohibition to their issue, leaving it to the Commander-in-Chief to decide whether in the case of certain corps, such as the Goorkha Hill Regiments, the possession of colours is inappropriate. This will entail no expense, colour havildars being already borne on the establishment of each regiment.

25. We also concur in the views of His Excellency with respect to bands. The Court of Directors had sanctioned their formation in all corps; but after the mutiny the Government of India declined to allow any fresh bands to be formed, though existing bands were allowed to continue. We have no doubt that the existence of a band in a regiment has a wholesome effect on *esprit de corps*, and that is highly appreciated by the Native soldiers, and we know that in several corps the officers would gladly, if permitted to do so, establish bands. We therefore solicit sanction to allow bands in all regiments of Native Infantry, the officers of which express a desire for them. As 80 out of 131 regiments already draw the band allowance, the total cost of this measure would amount to Rs. 61,200 per annum; but it will probably be several years before the maximum is reached.

26. We shall be glad to receive the reply of your Lordship to these proposals at as early a period as may be convenient.

We are, &c.

(Signed) NORTHBROOK.
NAPIER OF MAGDALA
H. W. NORMAN.
ARTHUR HOBHOUSE.
E. C. BAYLEY.
W. MUIR.
A. J. ARBUTHNOT.
A. CLARKE.

Fort William, the 3rd March 1876.

From Major-General E. B. JOHNSON, C.B., Adjutant-General in India, to Colonel H. K. BURNE, Secretary to the Government of India, Military Department,—(No. $\frac{1688}{\text{Camp}}$, Finance—Compensation, dated Headquarters, Calcutta, the 23rd June 1874).

THE expediency of granting to the Bengal cavalry soldier compensation for dearness of provisions, having been recently brought prominently under the notice of the Right Honourable the Commander-in-Chief, I am directed by his Excellency to submit the following observations for the consideration of the Government of India.

2. The net pay of the dismounted sowar is Rs. 9-6-0, or Rs. 2-6-0 more than that of the infantry sepoy. From this sum of Rs. 2-6-0 he is required to pay for his arms, equipment, clothing, carriage on the march, for which he receives no batta, and hutting, for which no allowance is granted on his reaching a new station.

3. Giving due consideration to these demands upon his additional pay, it must be admitted that the circumstances of the cavalry soldier compare adversely with those of his infantry comrades, and that he stands at least equally with them in need of compensation for dearness of provisions.

4. The justice of the claim was recognised and forcibly commented upon by the late Major-General Broome, in paragraph 39 of his confidential memo.* No. 370A, dated Simla, 31st August 1870.

* Forwarded under Military Department, docket No. 527, Confidential, dated 26th September 1870.

5. In exceptional cases the sowar may be able to save a trifle from the horse allowance, but as a general rule this will be entirely absorbed by the expenses connected with the horse, saddlery, stable gear, pony, syce and troop servants.

6. It has been ascertained that at one station, Bareilly, which certainly cannot be considered an exceptionally dear place of living, on the contrary food and forage are less expensive there than at most stations, the unavoidable expenses of the sowar amount to Rs. 25-15-9 (see margin), leaving a very small balance for the maintenance of his family, or for unforeseen contingencies; and although at a few stations the cost of living may be somewhat less, the ordinary and average expenses of a sowar are so great that the men experience considerable difficulty in providing themselves with sufficient nutritious food, without incurring debt to the native traders.

	rs.	as.	p.
Food	6	4	6
Do. horse	9	1	3
Share of Syce's wage	3	0	0
Troop expense for followers not paid by Government	1	0	0
Funds	2	10	0
Uniform, equipment, &c. about	4	0	0
Rs.	25	15	9

7. It is true that since the irregular cavalry were first raised, the sowar's pay has been increased from Rs. 20 to Rs. 27, but a more than corresponding augmentation has taken place in the price of his horse, equipment, clothing, and the necessaries of life; and he is required to be, and is far better mounted and equipped than formerly, his efficiency and value as a cavalry soldier being proportionately enhanced.

8. Lord Napier of Magdala trusts that the foregoing observations will induce the Government of India to view favourably the claim put forth on behalf of the non-commissioned officers and soldiers of the Bengal cavalry.

No. 94 of 1876.—Military Department.

To the Most Honourable the Marquis of Salisbury, Her Majesty's Secretary of State for India.

MY LORD MARQUIS,

YOUR Lordship is aware that we have recently had under our consideration the subject of a revision of the pension rules of the Native Armies.

2. In January last at the Delhi Camp of Exercise we caused the assembly of a special committee of officers from the three armies under the presidency of Major-General D. Stewart, C.B., to take into consideration the existing rules, which were reported as unsuitable to present time, and to submit such alterations as might tend to increase the efficiency and the popularity of the Native Army.

3. The committee have submitted their report, together with a series of proposals which have been financially reviewed, but the questions now raised are so important and moreover so complicated as to require further consideration both in a military and financial point of view, as well as an expression of the opinions thereon of the Governments of the Madras and Bombay, and of the Commanders-in-Chief of those Presidencies.

4. In thus deferring for a time a submission to Her Majesty's Government of our decision on this very important subject, we would earnestly beg your Lordship not to delay decision on the many other matters regarding the Native Army which

we have lately submitted for consideration, and which are unconnected with the subject of pensions.

We are, &c.
(Signed) NORTHBBOOK.
H. W. NORMAN.
ARTHUR HOBHOUSE.
E. C. BAYLEY.
W. MUIR.
A. J. ARBUTHNOT.
A. CLARKE.

Fort William, the 11th April 1876.

Military.—No. 156.

To his Excellency the Right Honourable the Governor General of India in Council.

My Lord, India Office, London, 15th June 1876.

Para. 1. I have received and considered in Council your Military Letter, No. 54, dated the 10th March 1876, forwarding with reference to my despatch, No. 31, dated 4th February 1875, a letter from the Government of Madras, together with a further collection of opinions on the subject of the future organization of the Native Cavalry of that Presidency, and stating that, having again carefully considered the whole question with the advantage of personal communication with his Excellency the Commander-in-Chief in India, and with his Grace the Duke of Buckingham and Chandos, Governor of Madras, you are led, in the face of the opinions you have recorded and of the strong disinclination to adopt the Silladar system in Madras, to urge strongly that the present system be continued, namely that the men continue to be provided with horses, uniform, arms, &c., by the State as heretofore.

2. Under these circumstances I shall no longer withhold my sanction from this course, and I approve of the instructions which you have issued for the renewal of recruiting in this branch of the Native Army, and for the gradual completion of the several regiments up to a fixed establishment of 300 troopers each, which will include the 25 troopers of each Corps serving with the Body Guard.

I have, &c.
(Signed) SALISBURY.

No. 54 of 1876. Military Department.

To the Most Honourable the Marquis of Salisbury, Her Majesty's Secretary of State for India.

My Lord Marquis,

We have now the honour to reply to your Lordship's despatch of the 4th February 1875, No. 31, on the subject of the Madras Cavalry, in which your Lordship replies to our recommendation to maintain that branch of the army on its present organization, and in which we are requested to give our opinion apart from the deference we may desire to pay to the views of the Madras Government, and to obtain the opinion of His Excellency the Commander-in-Chief in India, and also that of officers of known judgment and local experience, as to the class of men available for service as Native cavalry soldiers in the south of India, and the special objections, if any, to the application of the Silladar system to that class.

Despatch No. 148 of 1st August 1874.

2. We now forward a letter from the Government of Madras, No. 3467, of the 22nd July 1875, with a collection of opinions on this subject, and we have again carefully reconsidered the whole question, having the advantage of the presence of his Excellency the Commander-in-Chief in India at the Council, as on the occasion of our previous recommendation of the 1st August 1874.

3. We have further had the advantage of discussing the future organisation of the Madras cavalry with his Grace the Duke of Buckingham and Chandos, who has been in Calcutta, attended by the military secretary to the Government of Fort St. George; and in the face of the opinions we have received, and of the strong disinclination to adopt the Silladar system in Madras, we would again urge that the present system be continued, namely, that the men continue to be provided with horses, uniform, arms, &c., by the State as heretofore.

4. We are of opinion that your Lordship over-estimates the inconvenience of maintaining a small body of cavalry in one part of India on a footing differing from that which has been introduced in other parts of the army, except in so far as, man for man, the system in Madras is more expensive. In point of fact the organisation is hardly different from that of the Native cavalry elsewhere, for we propose no addition to the number of European officers in regiments, or alteration in their duties, the regiments having, as far as we are able to ascertain, in no way deteriorated (save from the suspension of recruiting) during the series of years in which they have remained on the new organisation.

5. In point of fact, the only difference between the Madras cavalry and other Native cavalry now is that the former are provided by the State with horses and equipment, which the latter pay for to the funds of their regiments by subscriptions out of their higher rates of pay, it being now rare for men to join the cavalry anywhere with a horse and equipments, or with sufficient money in hand to pay for them.

6. The state of the Madras cavalry, however, as to numbers is so serious, and the age of the men is becoming so excessive, that we have taken upon ourselves the responsibility of allowing recruiting to commence very gradually on the present system, with the proviso that any men so entertained are enlisted on the distinct understanding that they are to be prepared to conform to any organisation your Lordship may be pleased to direct.

7. We are assured that should your Lordship take an adverse view and direct the conversion of the Madras cavalry into Silladar regiments, the enlistment of these recruits will in no way interfere with the measure.

8. We do not now propose any reduction in this branch of the service, as we understand that your Lordship does not desire to entertain such a proposal apart from the general question of the strength and distribution of the Native Army, but we desire to recruit the regiments gradually up to their fixed establishment of 300 troopers each, which will include the 25 troopers of each corps serving with the body guard of the Governor. The regiments at present average rather less than 220 men of all ranks present, excluding the men with the Governor's body guard and on escort duty with the Commander-in-Chief of the Madras Army.

We are, &c.

(Signed) NORTHBROOK.
NAPIER OF MAGDALA.
H. W. NORMAN.
ARTHUR HOBHOUSE.
E. C. BAILEY.
W. MUIR.
A. J. ARBUTHNOT.
A. CLARKE.

Fort William, the 10th March 1876.

Confidential—Organization—Native Army.

No. 3467.—Military Department.

To the Secretary to the Government of India, Military Department.

SIR,

I AM directed to acknowledge the receipt of your letter No. 980, dated 17th March 1875, communicating extract from a military despatch from Her Majesty's Secretary of State for India on the subject of the future organization of the cavalry branch of the Native army of this Presidency, for a further expression of the opinion of the Honourable the Governor in Council, and suggesting that the views on the question of officers of known judgment and local experience be also obtained.

2. In reply, I am to transmit herewith for submission to, and consideration of the Viceroy and Governor General in Council, and of the Right Honourable the Secretary of State for India, copy of a letter from the Adjutant-General expressing the opinion of his Excellency the Commander-in-Chief on the proposed conversion of the Madras Native cavalry into Silladar horse, and furnishing communications on the same subject from certain officers of this army, whose views his Excellency has invited in compliance with the wishes of the Government of India.

* No. 153, dated 25th June 1875.

3. I am also to forward the accompanying copies of minutes on the subject recorded by the several members of this Government.

4. In placing these papers before the Government of India, I am also to submit the following general observations in reference to the important question now under discussion.

5. The Right Honourable the Secretary of State for India has been pleased to observe in his despatch now under reply, that the opinion expressed by the authorities at Madras in 1873, would seem to be at variance with the views expressed by the authorities at that Presidency in 1861.

6. On a reference to the papers then recorded, it will be found that in a despatch from the Secretary of State, dated 24th January 1861, No. 14, paragraph 5, this Government was requested carefully to consider, in communication with the Government of India, whether considerable "reduction of expense" and "greater efficiency" might not attend the conversion of the remaining regiments of light cavalry into so many regiments of irregular horse.

7. In reply to this communication, a minute was recorded by the then Governor the late Sir William Denison, himself a military officer, strongly adverse to the proposed change. The then provincial Commander-in-Chief, Major-General Budd, merely stated that the regiments of Native cavalry of this Presidency *might* now with advantage to the State be converted into so many regiments of irregular horse, and the two civil members of Government, the Honourable Mr. Morehead and the Honourable Mr. Maltby, concurred in these views.

8. It will be observed, however, from a perusal of these minutes, that neither the provincial Commander-in-Chief nor the civil members of Government discussed this question on military grounds, or with reference to the real points of "efficiency" and "economy" as between a native of southern India trained and equipped as a regular cavalry soldier, or trained and equipped as a Silladar, but simply viewed the questions on the assumption that the Madras Cavalry was not effective in proportion to its cost.

9. It is evident that the point they had in view was the economy to be effected by the reduction of the number of European officers with a regular regiment, to that allotted to an irregular cavalry corps, and this very doubtful economy was carried out in 1865, while the constitution of the Native ranks was left untouched.

10. The question that came under discussion in 1873, and which now presents itself for decision, is whether experience has supplied sufficient data for a trustworthy comparison of the "efficiency" and "economy" of the two systems. On this point I am directed to refer to the papers received from Bombay on the conversion of the Native cavalry of that Presidency into irregular horse.

11. These papers, after some 14 years' experience, do not disclose that either additional "efficiency" or "economy" has been attained by the change, but on the contrary, show conclusively that the system completely broke down in Abyssinia and Persia, where the commissariat had not only to come to the aid of the Silladars in the matter of providing remounts, but also in finding forage for their horses during the campaigns.

12. This experience fully establishes, in the judgment of the Governor in Council, the soundness of the views of the late Sir William Denison, and the Government of Madras are unable to admit that opinion expressed by the provincial Commander-in-Chief and the civil members of Government 14 years ago, on mostly conjectural grounds, and which subsequent events have not confirmed, are entitled to the consideration due to views based mainly on actual experience.

13. However well suited the irregular or Silladar system may have been to the circumstances of the Pindarrees or Mahrattas of a past generation, no officer of mature experience in the Madras Presidency, either European or Native, would advocate it as equally well adapted to the natives of Southern India at the present day.

14. The organisation is of a nature that could not be carried out in this Presidency with the measure of success, whatever that may be, which has attended the same organisation in Northern India, for the simple reason that the material does not exist. It is even asserted by officers of lengthened experience in the cavalry branch of the Hyderabad Contingent, that the class of men who were 30 years ago eager to obtain irregular cavalry service is not now to be found, and it is a noticeable fact that his Highness the Nizam has reformed his own troops on the regular system.

15. The average Native trooper of this Presidency is a needy man, with a large family and other relatives dependent on him, and the Government have no guarantee, nor any reasonable ground to suppose, that the introduction of the Silladar system would attract a better class of men, either physically or pecuniarily. The rate of pay, after all deductions for provision and maintenance of his horse, arms, accoutrements, clothing, &c., would leave each man a balance barely, if at all, sufficient for his own and family's support, and in the majority of cases would necessitate his getting into debt.

16. Indeed, in this Presidency, it is very questionable whether, on the sanctioned rate of pay for a Silladar, chronic indebtedness would not be the normal conditional of the sowar after the advantages of the first gift of horse, arms, and accoutrements had ceased to tell.

17. That the measure has not even the recommendation of economy is apparent from the accompanying statement, compiled from the budget estimates by the Controller of Military Accounts, of the comparative cost of a regiment of Bengal cavalry on the irregular system, and a regiment of regular Madras cavalry, although, as will be observed, that against the latter is exhibited the considerable amount of Rs. 17,500 per annum as probable outlay on account of remounts, which, at the average cost of Rs. 300 for each remount for Native cavalry, would give about 58 remounts per regiment.

18. This statement gives the annual approximate cost of an irregular corps at Rs. 2,62,158, while that of a regular regiment is shown to be only Rs. 2,52,545, or nearly Rs. 10,000 less than the former.

19. It is observed, however, that the Bengal irregular corps is 70 sabres stronger than the Madras regiment; but even at the same strength of rank and file for both corps, the comparison would still be in favour of the Madras regiment; and if to the irregular corps be added the probable double charge for forage in the field for the Silladars' horses, and costs of remounts on service, the one organisation becomes very much more expensive than the other.

20. The Government of Madras cannot, therefore, but strongly deprecate the introduction into its army of a system which there is every reason to apprehend would, by reason of its inherent defects, lead to unfavourable results.

21. As intimately connected with this subject, I am to invite the attention of the Right Honourable the Governor General in Council to the question of the future strength in cavalry of the Madras Army. The point is adverted to by His Excellency the Commander-in-Chief, who notices that in this Presidency the Native cavalry at full strength of 380 sabres per regiment stands in proportion to the Native infantry as 1 to 18, a ratio which, I am to submit, would undeniably render that arm of very little practical value in field operations. Recent European warfare has demonstrated the great utility of cavalry, and the high estimate in which that branch is held by all the continental powers is evident from the relative proportions of their cavalry and infantry, which are as one of the former to seven of the latter. If, therefore, the Madras army is to be maintained in efficiency for service in the field, it is, in the opinion of His Excellency the Governor in Council, essential that the cavalry branch of the force should be maintained at a due relative proportion to that of the infantry.

22. I am to add, however, that strongly opposed as the Madras Government and its most experienced officers are to the Silladar system, its introduction, if ordered, will be carefully carried out; and the Governor in Council is confident that in giving effect to the decision of Her Majesty's Government he will receive the cordial co-operation of His Excellency the Commander-in-Chief, and of every officer of this army concerned therein.

23. I am, finally, to express the cordial acknowledgments of the Government of Madras for the courtesy and consideration of the Right Honourable the Governor General in Council, in affording them this opportunity of a further expression of opinion on a question of much importance to the best interests of Her Majesty's service.

I have, &c.
(Signed A. C. Silver, Colonel,
Secretary to Government.

Ootacamund, 22nd July 1875.

From Brigadier-General R. C. Stewart, Adjutant-General, to Colonel A. C. Silver, Secretary to Government, Military Department; dated Headquarters, Ootacamund, 25th June 1875, No. 153.

In answer to letter as per margin from the Government of India to the Government of Madras, and referred to the Commander-in-Chief with advertence to proceedings of Government, No. 1891, dated 5th June 1873, I have it now in command to submit to Government the following views and opinions held by Sir Frederick Haines on the proposed change of organisation of the Madras light cavalry:—

No. 980, 17th March 1875, returned as requested.

1. His Excellency learns from correspondence received from Bombay regarding the conversion of the old regiments of Bombay cavalry to the irregular system, that apparently no difficulties were encountered. The change seems to have been carried out by a stroke of the pen, in opposition, it is true, to the recorded opinion of all regimental officers concerned, but with a fair measure of success. The men seem to have been treated with liberality, and horses, arms, and suitable equipment were presented to those who elected to serve under the new organisation, which, perhaps aided by the attractions of a new rate of pay, became and remains popular with the men now serving in the Bombay irregular cavalry.

2. His Excellency does not doubt that a like treatment of the Native cavalry soldier in this Presidency would ensure the same results after a time; and he would state that, while he says he is prepared to carry out the proposed conversion of this light cavalry, he has reason to expect the consequences of the same would prove as successful as they have done in Bombay.

3. Should the change be decided upon, his Excellency would utilise all existing material as far as it will go, that is, retain all men fit to serve as irregulars, although for the most part our cavalry men are old, and he is aware that in Bombay the old regular trooper was not found to conform very readily to the new order of things. However, to deal in this manner with these somewhat impracticable individuals, would, he considers, be far preferable to adopting the alternative of cutting them off prematurely from a service which is their ordinary source of livelihood.

4. Further, his Excellency would wish to recruit, at first, from our usual grounds until they become exhausted, as doubtless many of the descendants of our old cavalry soldiers are anxiously

looking out for an opportunity of joining the service, to which they feel they have some hereditary right, but which has been so long closed to them.

5. Sir Frederick Haines states thus prominently his readiness to accept this repeatedly proposed conversion, because it appears to him to be the only way by which this army is likely to be supplied with Native cavalry, not because he thinks it the best way of providing for this most necessary branch of the service. Indeed, I am here to state that his Excellency deems it his duty to declare once more his firm adherence to the regular system as that most suited to this Presidency in particular, and best calculated to ensure our possession of the most efficient class of Native cavalry in general.

6. The above has ever been Sir Frederick Haines' opinion, and it is now strengthened by what he reads in the papers which have been received from Bombay on this subject.

In answer* to some questions put by me, at the Commander-in-Chief's desire, to the Adjutant-General in Bombay, the latter replies [to one of them as follows:

"The experience of the new system tends to show that it is not so efficient as the old regular system. It was not possible to maintain the Silladar system in its integrity in Abyssinia. In that country, as before in Persia, the commissariat was obliged to undertake the supply of the Silladar Corps as for the rest of the army."†

"The new system does not appear to be unpopular with the men."

* *Vide* Report (attached) on queries propounded in Madras Adjutant-General's letter No. 801 of 5th April 1875.

† *Vide* letter (copy attached) from Adjutant-General, Bombay, No. 1679, of 14th October 1868, to Secretary to Government, Bombay.

7. In connexion with the above, his Excellency remarks that one of the strongest arguments in favour of the irregular system is, that regiments formed upon it are always ready for immediate service, and are entirely independent of commissiariat arrangements, and he would now submit to Government that (as far as the experience gained in Persia and Abyssinia goes) the Bombay Light Cavalry, after conversion, does not possess these desirable properties, and also that the objection to the change of organisation stated to have been raised by officers then serving in the Bombay cavalry have been amply justified, for they declared that "the conversion was "false economy, which would be exemplified on active service in a foreign country."

8. Seeing then that cavalry regiments, whose primary qualities (in theory) are asserted to be complete readiness for active service, and total independence of departmental assistance, had to fall back upon the ordinary sources of supply provided for the other regiments of the forces, Sir Frederick Haines would ask Government to consider whether it be wise to change the proved good organisation of modern cavalry into that of the antiquated and inefficient form, from which the former through years of progressive improvements has been developed. Taken as a question of economy to the State, this most important subject cannot be considered with those matters generally included in that category, for all Indian history teaches us that in order to maintain the supremacy of the British arms in the East, we must assiduously strive to attain the best and consequently the most modern system of organisation for our military forces.

9. The Commander-in-Chief directs me to forward to Government, with this letter, copies of all papers received from Bombay, and from commanding officers of the Madras cavalry regiments, on this question, in order that they may speak for themselves, be it either for or against the proposed conversion; and in doing so, I am to bring to special notice one point which his Excellency thinks tells forcibly in favour of our present system, viz.:

In 1868, as now, the Madras Government sought information from that of Bombay regarding the process by which the regular regiments of the Bombay cavalry were converted into Silladars, and in transmitting the general orders, &c., bearing on the subject, the adjutant-general remarks:

"The provincial Commander-in-Chief observes that the experience of the new system in this presidency tends to show that it is not so efficient as the old regular system; indeed, a little reflection on the subject must convince anyone that such a result is but natural, and he would invite attention to paragraphs 17–19 of letter‡ No. 8754, from the acting adjutant-general of the army to Secretary to Government, Military Department, dated 21st December 1861.

‡ Copy attached.

"General Gordon has had under his observations at Poonah, a regiment of Madras cavalry under the regular system, and one of the Bombay cavalry (before and after the war) under the Silladar system, and the comparison is much in favour of the former corps." The remainder of the letter will be found equally condemnatory of the irregular system, and it directs attention to its partial failure in Persia and Abyssinia, as before alluded to.

10. As mentioned above, the Commander-in-Chief, in conformity with the instructions contained in paragraph 2 of the Government of India's despatch, No. 980, Military Department, has obtained the views of all officers commanding Native cavalry regiments in this presidency, as those of military men whose opinions on the question under discussion are likely to be valuable, and having done so, he would now draw special attention to the uniformity with which the proposed conversion is condemned by these officers. It is true they are men who have passed their lives under the system they uphold, but Sir Frederick Haines does not consider that to be a sufficient answer to their arguments. They are all intelligent men, men whose future in nowise depends on the maintenance of the actual state of things or otherwise. As far as the service can secure it, it is perfectly safe. There can be no reason of this sort why they should not cordially accept a change of organisation which they well know several men in authority have greatly at heart. But they do not accept it, and why? because they are keenly alive to the interests of their men, and are jealous of the prestige of their own service. They are intimately acquainted with the feelings and circumstances and opinions of those men under their command, and no doubt the notion§ of the old Native officer, recorded by Colonel Phillips, 3rd Light Cavalry, may be taken as the Native cavalry soldier's view of the relative merits of the two systems.

§ "I cannot understand your meaning, Sir. For many years you have been teaching us an improved style of manœuvring and fighting, and with it we have succeeded against your enemies; and now you wish to put us back to our old system, which is that of the Mahratta Horse, Pindarees, &c., whom under your discipline and leading we have beaten at any odds as to numbers."

11. Then again due weight his Excellency thinks should be given to the fact that numerous Native soldiers discharged on the reduction of our Native horse artillery and light cavalry, preferred service in his Highness the Nizam's reformed troops, which are not on the Silladar system, to that of the cavalry of the Hyderabad Contingent, which is on that system.

This clearly shows that the cavalry soldier of the south, from his inability to provide himself with horse, arms, and equipments, and consequently his desire to avoid any risk of loss in his monthly pay such a responsibility would involve, has a strongly marked preference for the regular organisation, under which he knows exactly how much he has to receive, and how much he can afford for the support of his relatives.

The Madras light cavalry man now gets 11 rupees a month, and on an average 2 rupees a month rice money, in all 13. Were he to be converted into a Silladar, the keep of his horse, subscription to funds, &c., would probably amount to 19 rupees per mensem. This would leave him 11 rupees, and a deal of care and anxiety with which to find provisions, clothes, &c., and to keep up his equipment.

12. It appears to the Commander-in-Chief that this question of the class of cavalry best suited for service in this country is part and parcel of the great question of Army reorganisation now before the Government of India, and that if it be admitted that a return to the regimental system should be adopted in the infantry, the cavalry should be treated in like manner.

A study of the late wars in Europe certainly does not tend to diminish the importance of the cavalry arm, but rather the reverse. It shows that the numerical proportion of cavalry to infantry must be increased beyond what has been hitherto customary with us, and that its force and efficiency in active service depends wholly and solely on the care that has been given to its discipline and organisation.

13. His Excellency would observe that our Native cavalry (as well as infantry) should be so systemised and trained as to render it fit to take part with British troops in every position in which they may be required to act; and this has been the principle on which the Madras army has always been trained; but, he would ask, is there not a tendency to admit that with the introduction of (in his opinion) an inferior organisation, inferior duties and position may be assigned to Native troops? Is there not a notion, that whilst they remain fairly efficient, it would be impossible to demand from them everything which a British soldier may be called upon to perform? Sir Frederick Haines would not say that the sepoy can, under any circumstances of training or organisation, be expected to equal the British soldier, but he is sure it is wise so to train and treat him as if this were hoped of him, and thus lead him to entertain a high opinion of his own prowess.

14. His Excellency maintains that so long as we have a Native army, and so long as these armies are so small in proportion to the vast population and enormous area of territory over which our rule extends, so long are we bound to give them the best organisation and training they are capable of receiving and we of imparting. And, again, a further reason for this is, the strength of armed men kept up by a feudatory princess within our boundaries, and the possible responsibilities and dangers which may come upon us from without.

In connexion with the foregoing, I am to state that his Excellency would here assert what he has elsewhere maintained, viz., that our success in organising Native troops depends upon a due and liberal allotment of British officers, especially as *leaders;* that without this it is impossible to preserve Native regiments in proper working order, and in a full state of efficiency and fitness for all purposes.

15. In conclusion, Sir Frederick Haines now trusts that, whether or not the European system be abandoned for that of the Silladar, final orders may be passed on the future state of the Madras cavalry. It is well known to Government that the four regiments, if amalgamated, would scarcely form one efficient regiment for field service, and that they are truly in a state of inanition from the long withholding of recruits, as reported in my letter marginally noted. This, his Excellency says, is a most depressing state of things, and the order which shall relieve us from it will be hailed with joy.

No. 209 of 8th April 1873.

From Colonel J. G. Cookson, Commanding 1st Light Cavalry, to Brigadier-General R.C Stewart, C.B., Adjutant-General, Madras, dated Secunderabad, 13th April 1875.

I have the honour to acknowledge the receipt of your confidential letter, dated the 9th instant, and as requested therein proceed to reply to the several paragraphs seriatim.

1. From my experience and knowledge of the Madras light cavalry, I am of opinion that the men generally would not approve of the change from our present system to that of the Sillidar, and for the following reasons, viz.:

That they are so wedded to the regular system, having been accustomed to it all their lives, as were their fathers before them, that I believe (excepting perhaps the higher grades, whose pay by the change would be considerably increased), they would be much adverse to any innovation or changes.

2. I consider that the tastes and habits of the men of the Madras Light Cavalry lean much more towards our present system than they ever would towards that of the Silladars, for they have always been accustomed to be commanded entirely by British officers, and have, I am sure, much more confidence and trust in them than they ever would have in the smartest and most efficient Native officers, though, doubtless, they would prefer the Silladar system rather than that the Madras Cavalry should entirely disappear, in which case they would not know where to look for a livelihood.

3. There is but little doubt, I imagine, but that if the regular cavalry were done away with, the sons and relatives of the old service would seek for employment in the new, being so entirely a military race, but I am inclined to believe that they would much more readily follow in the footsteps of their ancestors and enlist into the regular cavalry if the door was only opened to them.

4. I should not think that a really efficient Silladar horse could be purchased under from 300 to 350 Government rupees, or that his keep would cost under 19 or 20 rupees a month.

5. I shall, of course, consider your letter under reply as strictly confidential.

From Colonel C. R. STAINFORTH, Commandant, 2nd Light Cavalry, to Brigadier-General R. C. STEWART, C.B., Adjutant-General, Madras, dated Kamptee, 15th April 1875.

Before submitting replies to the questions set forth in your confidential note of the 9th instant, I beg to point out that I have but little acquaintance with the rules and regulations in force in Silladar regiments. A copy of the latest edition of the Bengal Cavalry Standing Orders would have been of great assistance to me in forming an opinion on several points; I therefore write with much diffidence.

2. Major G. A. Prendergast, commanding 15th Bengal Cavalry, who was here a few days ago, informed me that the pay of a Silladar, Rs. 27 per mensem, was insufficient, and that he had often brought this to notice.

3. I believe that there is no *pension* under the Silladar system.

A. The Silladar system would not be popular with men who have been in the service for any length of time. The Native character is averse to change, and unless the new system largely increased their gains, they would not consider it to their advantage. Hitherto the Government have undertaken the provision of horses, and all articles necessary for their keep and equipment. No responsibility has rested on the sepoy, who, if he performed his guards and attended parades, need take no thought of the future; he was sure of his pay and allowances at the end of the month. This would all be altered. Every rise in price in the ordinary articles of food and clothing for himself and his horse would be a source of anxiety and loss. A march would be looked forward to with more or less apprehension as depreciating the value of his property by wear and tear, as well as entailing extra outlay.

Q. 1. From your experience and knowledge of Madras Cavalry, would you think a change to the Silladar system would be popular with the men, and if not, the reason?

2. The sepoy would expect for this increase in his responsibility, and the uncertainty of his prospects, corresponding increase in his nett pay. This I do not fancy he would get.

3. He now receives Rs. 11 and rice money, at an average at Kamptee Rs. 2 per mensem; deduct this from the pay of a Silladar Rs. 27, and 14 rupees remain for provision and renewal of horse, saddlery, arms, and clothing, and keep of horse. This appears quite inadequate. Natives are all mercenary soldiers, and estimate everything from a profit and loss point of view. If the new system happened to entail any loss to them, they would feel it bitterly.

4. The majority of the men serving in the 2nd Madras Cavalry are advanced in years, and would neither like the change nor understand it.

5. If there is *no pension* attached to the Silladar system, this alone would condemn it in the opinion of those now in the service, as a pension, however small, is exceedingly prized and looked forward to by all.

A. Had the old European system never been known, I think the Silladar system would have been congenial to the tastes of the class of men composing the Madras Light Cavalry. It has this advantage, it would infuse into those who liked it a spirit of proper pride; being the owners of property, they would feel more self-importance, a feeling to be encouraged among soldiers.

Q. 2. Would not this (the Silladar system) be as congenial nowadays to the tastes and habits of the Madras Cavalry as the present one formed on the European system was to their ancestors?

2. If, however, possession of property entailed debt, all advantages would be annulled.

3. There are scarcely any moneyed men in the Madras cavalry. I doubt there being 5 per cent. Many are probably involved more or less, and according to Major G. A. Prendergast, a Silladar should have money, or its equivalent, in a horse and kit, on entering the service. As few, if any, men could produce this, they would have to commence their service by borrowing, and would thus be thrown into the hands of Native money-lenders, probably for many years.

4. I do not think the tastes and habits of the Madras Cavalry soldier have in any way altered from those of his ancestors. The European system will always find more favour with him, as I have already stated.

5. The cavalry soldier is not highly educated, and if he found eventually the new system proved less remunerative than the present, he would possibly fancy the change had been made in a round-about way to get his services at a cheaper rate.

A. I doubt if the enlistment of the sons and relatives of those now in the service could properly be termed an introduction of fresh blood.

This class have been almost entirely educated in the lines of the existing regiments, and are thoroughly imbued with the thoughts, ideas, and views of their parents. A recruit for a Silladar regiment should bring with him a capital of at least Rs. 300; very few could do this, and the majority would be in the same predicament as their parents, as shown by me in answer to question 2, that is, in debt many years of their service.

Q. 3. If it is supposed such a change would find no favour with the present troopers, do you think that a large introduction of fresh blood, in the persons of the sons and relatives, would enable the system to work smoothly and effectually?

2. Our men, from generation to generation, have been soldiers, and have had little opportunity of acquiring property.

3. Fresh blood must be largely introduced, as many of our soldiers are too old to turn satisfactorily to a new and entirely different system, and also because the Madras Cavalry regiments are far below their complement.

Q. 4. At the stations you are best acquainted with, what would be the price of a Silladar horse, and what the cost of its keep?

A. There are at present two horse markets in the south—Bangalore and Hyderabad; a demand would, however, create a supply, and many animals now taken to Bangalore or Oossoor would, through the intervention of established agents, be brought direct from Bombay and the north to the stations were cavalry regiments are located.

2. Good serviceable horses might be purchased, in *batches*, for about Rs. 250 each.

3. In December 1872 I saw the Nizam's African body guard at Mucktut. The commandant told me his horses averaged 400 Halli sicca rupees (about Government Rs. 335). I thought the corps generally *as well* horsed as my own regiment, and one select troop for galloper guns *better* than the 2nd Madras Light Cavalry.

The keep.—1. At present chenna is cheaper than usual at Kamptee. At Secunderabad it is always very dear; and at Bellary, generally so.

2. In the south firewood is an extra small expenditure.

3. The following is an estimate of the keep of a horse at different stations in favourable seasons:—

KEEP of a HORSE for one Month.

	Kamptee.			Secunderabad.			Bellary.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Syce and tattoo Rupees 12; between two men -	6	0	0	6	0	0	6	0	0
Chenna / Kooltee } 120 seers - - - - -	6	0	0	10	8	0	8	0	0
Line gear, shoeing, and medicine - - -	1	8	0	1	8	0	1	8	0
Chunda Fund - - - - - -	1	0	0	1	0	0	1	0	0
Firewood - - - - - - -		—		0	1	0	0	2	0
Municipal tax - - - - - -		—			—		0	12	0
Total - - - - -	14	8	0	19	1	0	17	6	0

4. The expense of keeping up saddlery, arms, accoutrements, and clothing, I cannot pretend to judge.

5. On the whole, I am of opinion that the south of India is not now the country for raising Silladar Cavalry such as we should require.

6. I think in ordinary years, at Kamptee, Rs. 30 might be sufficient for a Silladar trooper's allowance.

In conclusion, I would remark on our system, that there has been a great deal said against the men being encumbered with their families. In my opinion this is a great safeguard against disaffection; it can never be an impediment to active service. In June 1857 the 4th Cavalry quitted its lines for Nagpore in the middle of the night. Two hours after warning, without sound of trumpet, it was 11 miles away, and remained in camp till September, one troop starting at once for Jubbulpore with Kamptee moveable column. The regiment in September returned to its lines, and three or four days after orders left for Bengal and the north, leaving families behind, and did not return to Kamptee till early in 1860. There was not the smallest difficulty found in the disposal of the families, and the men cheerfully proceeded on service without any hesitation or doubts regarding them. I was quartermaster of the regiment and speak from personal knowledge.

Colonel Stainforth adds in a note that the women grass-cutters, who were very numerous—(the 4th Light Cavalry in 1858–59 in Bengal)—were repeatedly taken for the families of the troopers. From this no doubt originated the idea of the Madras Cavalry going into action with their families.

(Signed) R. C. S.

From Colonel G. R. PHILLIPS, 3rd Light Cavalry, to Brigadier-General R. C. STEWART, C.B., Adjutant-General, Fort Saint George, dated Saugor, 19th April 1875.

I have the honour to acknowledge your letter of 9th instant, and proceed to answer your questions.

Q. 1. Whether the change to Silladar horse would be popular in Madras Light Cavalry?

A. I know that the change would be very unpopular. I have spoken on the subject at various times during the last 10 years—the period this conversion has been impending—with men of all ranks of the cavalry. They appear to have but one opinion.

Their chief objection to revert to irregulars lies in the prestige of their present service, and in the soldier character we have given them.

To understand this, the circumstances under which this class of soldier came into our army must be recorded. They were the horsemen of Hyder Ali and Tippoo Sultan. Whole regiments

were taken over with their Native commandants, who, when become non-effective, were replaced by European officers, and the English system was gradually introduced. Each change the men were taught to look on as an improvement, and they evidently have so regarded it. They admit their former organization to have been inferior, and are much surprised that we should wish them to revert to a comparatively rude and inefficient system.

There is a kind of instinctive appreciation of our management both of men and horses. They adopt our exercises and themselves become very skilful in them.

I need not say that their conclusions are intelligent, and founded on common sense. The weapons settle to a great extent the value of cavalry soldiers, but not to such a degree as their horses. In both respects, and especially in his horse, the Madras Cavalry sepoy is equipped in a way not to be approached by men providing and feeding their own horses, and breaking them in with heavy martingales and torturing bits.

There is among our privates a sense of superiority in themselves as regulars, and almost of contempt for the looser discipline and prancing uselessness of Silladar horse.

I believe I am not exaggerating when I say that our men would consider themselves to some extent humiliated by the order to revert to the obsolete style discarded so long ago.

The feeling was one day most clearly expressed to me by an old Native officer; he said, "I "cannot understand your meaning, Sir. For many years you have been teaching us an improved "style of manœuvring and fighting, and with it we have succeeded against your enemies; and "now you wish to put us back to our old system, which is that of the Mahratta Horse, Pindarries, "&c., whom under your discipline and leading we have beaten at any odds as to numbers."

2. Then there is a very great objection as to owning and keeping a horse.

While our men have, as soldiers from father to son, for so many years acquired a thoroughly soldierlike way of thinking and acting, they have not at the same time grown rich. Only those who have reached the highest ranks have been enabled to leave their children even a competence. As a rule, no private could afford to purchase a horse; and they say, what is certainly true, that they could not under any circumstances command the same style of horses as is furnished by Government.

They could not too, they say, even if having money to buy, be certain of a good horse as now. If a man purchase an animal which turns out inferior he is usually unwilling to acknowledge it, and ready to endure and gloss over his horse's defects rather than incur outlay for another; while, with the horse the property of Government, if it does not make a good trooper it is at once cast.

And in using their own horse, they confess that they should not feel so unconcerned as when riding the animal provided for them.

I may add that history has shown this to be a true averment. Scarcely a conflict occurred in former days between our forces and those of Native powers where their numerous horse did not quit the field only apparently to save their horses. In short our men are very averse to a system where providing their own horse is obligatory.

To recapitulate, the troopers of the Madras Cavalry would view the change to Silladars as a loss of grade, just as a regiment of "heavies" or lancers would dislike change to hussars, although all are equally good and honoured soldiers. They have come to acknowledge gradually that the organization they have been brought under is the best; and while aware that their present weapons are not perfect, they look upon that as an accident, and prefer as a whole their present equipment and management to those of Silladar horse. They shrink from becoming the owners of their horses, and are convinced the difference of pay would not enable them to furnish as efficient remounts as expected.

Q. 2. Would not Silladar system be as congenial now to men of Madras Light Cavalry as the regular system was formerly to their ancestors?

A. I think not. Their ancestors appear to have admitted that the European organization ensured success, and was in every way superior to their own, and they cordially accepted it as an ignorant man would gratefully accept any instruction and education held out to him—it improved him. There was nothing repugnant to those ancient soldiers in our organization: they gained medals and honour under it where before they suffered defeat and loss.

To their descendants, the present soldiers of Madras Cavalry, to be made irregulars would be distasteful and repugnant. They have never questioned the superiority of their present system, and would view the change as wholly and undeniably retrograde.

3 of 3. Whether new blood in their sons would not approve it?

A. The youths who would supply our future recruits, the sons, &c. of our present troopers, are more Europeanized than their fathers. They would understand being enlisted as their fathers were before them, but you would not, I venture to say, secure many of them for Silladars.

These young men who have grown to manhood and been anxiously awaiting a fresh recruitment in the cavalry, have lately been obliged to enlist in the infantry, as their parents could not afford to keep them longer. The commandants of the infantry corps they enlisted into have told me they are very good recruits. I am of opinion that if the choice rests between infantry and Silladaree horse, those young men will continue to prefer the infantry.

Fresh blood induced to the Silladaree system must be searched for among other classes, and I feel sure there is not so good a soldier class in the south as our Arcot and Mysore Mussulmans.

4 of 4. As to price and keep of horse?

A. At Sholapore and Jaulnah a breed of horse is procurable, called a Beema horse, but they are now scarce and are dearer than northern imported horses. At Secunderabad country horses are more freely procurable. At Kamptee there is no market for horses. At Saugor or Jubbulpore a Bengal regiment would supply itself with stud bred and horses from further north, there appearing to be positively no horse breeding near these places. All things considered, I don't think a cavalry trooper could provide himself with a horse under rupees 400.

The keep of a horse would be as below:—

	At Kamptee. Rs.	A.	P.	At Saugor. Rs.	A.	P.
Grain, at 8 lbs. per horse daily	8	9	0	5	0	0
Grass, at 20 lbs. per horse daily	2	0	0	1	8	0
Syce and general assistant	4	0	0	4	0	0
Line gear	1	8	0	1	8	0
Shoeing	1	0	0	1	0	0
Total	17	1	0	13	0	0

Average of the two stations, Rupees 15-0-6.

N.B.—Officers count the keep of a horse, with syce and grass cutter, at Rupees 25 per mensem.

From Colonel A. H. HOPE, Commanding 4th Madras Cavalry, to Brigadier-General R. C. STEWART, C.B., Adjutant-General, Madras, dated Bellary, 14th April 1875.

As directed in your confidential letter of 9th April, I have the honour now to report on the points called for.

1. I am of opinion that a change to the Silladar system would not be popular with the men of the Madras cavalry, for the following reasons:—

1. From experience and knowledge of the Madras cavalry, do you think that a change to the Silladar system would be popular with the men, and if not, the reason?

I. The men themselves, and the class to which they belong, are too poor to provide themselves with horses, arms, and equipments; and even if these were supplied to them in the first instance, they could not maintain them in efficient order.

II. The men greatly prefer being ruled by Europeans to being under the rule of men of their own class, as they have perfect confidence in the Europeans, especially those who have passed their lives with them and have been trained up with them.

III. The Silladar system is not popular or attractive to the men of the Madras cavalry, as during all the reduction of late years, and the difficulty of getting employment for their sons and relatives, none have ever joined the Hyderabad Contingent, simply from poverty, though numbers (who would flock to our old regiments should recruiting commence) have taken service with his Highness the Nizam. I have myself seen one regiment in his Highness' service almost entirely composed of the men discharged on the reductions which took place, and who only joined because they were mounted and equipped by the Hoozoor.

IV. The class of men from whom the Madras cavalry have been drawn are not as a rule provident, and much prefer being looked after and cared for by the paramount power. To leave them, therefore, to make proper arrangements so as to secure their perfect efficiency at all times would result in failure, more especially at the very moment when energy and efficiency were most required.

2. I would venture to say that I think the Silladar system would have been more congenial to the men of the last century, when the regiments were first raised, as they were then essentially a military class, many of them of wealth and position; and even in 1841 there were Native officers, gentlemen of property and means, but these men are not now forthcoming, their means and mode of livelihood being much reduced from the constant reductions of the strength and number of regiments to which in former days they looked forward as their sole means of earning their bread.

2. Would not this, the Silladar system, be as congenial nowadays to the tastes and habits of the Madras cavalry as the present one founded on the European system was to their ancestors?

3. As without doubt the change to the Silladar system would not find favour with the present troopers, it remains to consider whether the introduction of a large number of young men, the sons and relatives of the present troopers, would prove of advantage. Here I think their utter poverty and want of means stands in the way. A large body of men plunged into debt, which they must be, to obtain their horses, &c., would not I think work well, and would lead to that most objectionable system, the "Assamee," where the trooper has no interest in his horse, &c., and cares more for the voice of his hirer than for the orders of his commanding officer.

3. If it is supposed that such a change would find no favour with the present troopers, do you think that a large introduction of fresh blood, in the persons of their sons and relatives, would enable the system to work smoothly and efficiently?

4. Here a great difficulty presents itself, for since the establishment of railroads it is not as of yore, when strings of horses used to be marched through the country. These strings came frequently to Kamptee, Secunderabad, and Bellary, but now are never seen, and there are not any fairs or markets nearer to up-country stations than Mallagaum. The only marts where horses could be got would be Bombay, Madras, it may be Bangalore (the Hyderabad Contingent partly get horses from Bombay). I think, therefore, that whether regular or silladar, a sum of Rs. 400 for each would be required to furnish suitable remounts, and even then would be procured with great difficulty, certainly at first; but as time went on and dealers knew of the requirements the difficulty might diminish, though of that there is doubt, as dealers, on account of the now great expense of travelling, and from the dearness of all supplies, do not like to take their horses about the country as they used to do.

4. At the station you are best acquainted with, what would be the price of the man's horse, and what the price of his keep?

For the same reason it is difficult to fix with any accuracy what the cost of a horses keep would be, as the prices, particularly of grain, fluctuate so greatly. At Secunderabad, for instance,

only eight seers of gram sometimes are got for a rupee, at other times 30 and 40 seers for a rupee ; so I think the cost of keep (including clothing, shoeing, feeding, &c.) may fairly be considered to be between 15 and 20 rupees monthly for each horse.

In conclusion, may I be permitted to remark there is under the Silladar system an entire absence of "*esprit de corps*," which I venture to say has secured to the Madras cavalry that high character for discipline and efficiency which I am proud to think they have been graciously admitted by his Excellency the Commander-in-Chief still to hold, notwithstanding the many reverses in position and prospects they have undergone during the last 20 years.

From Lieutenant-Colonel T. Stock, Acting Adjutant-General of the Army, to the Secretary to Government, Military Department, Bombay, dated Poona, 21st December 1861, No. 8,754.

In answer to Sir R. Birch's letter, No. 407, dated 9th October last, in which the desire of the Supreme Government is renewed to obtain further information regarding the system pursued in the irregular cavalry of this Presidency, I have the honour, in the first place, by desire of the Commander-in-Chief, to enclose a return showing the debts of the irregular cavalry of this Presidency, together with series of answers to certain queries put by his Excellency's order to the commanding officers of cavalry regiments respectively.

2. The answers to these queries are about what were expected ; that is to say, with the exception of the Poona horse, (of which the affairs have been known for a long time, and are being gradually rectified under the influence of the increased rates of pay,) debt is nearly unknown to the commanding officers in the Bombay irregular cavalry.

3. It may be gathered from previous communications from this office that in all probability, in his Excellency's opinion, the state of things as known to commanding officers is not a very real one. The answers to the queries show that in some instances commanding officers view their power of arriving at the truth in this matter with a prudent scepticism, others, on the contrary, are confident in their knowledge and system. His Excellency believes that the former class is the one more likely to enlist concurrence according to all our knowledge and experience of Native character, and our proved inability to fathom the depths of the Native mind when there is any motive for concealment.

4. It may be remarked of the 12 regiments under consideration, that as yet the three first corps, or the late light cavalry, have not had time or occasion to incur debt, their horses and accoutrements having been presented to them by Government when they were recently converted from the regular footing.

5. The two corps of the Poona Horse, by far the oldest regiments of irregular cavalry in this Presidency, own to heavy debts. Their pay until lately was low, the country in which they lived being expensive in the matter of forage, &c. These debts are in course of reduction.

6. The Sind Horse own to no debt. If any corps should be without debt these should, as from the time of their being raised the sowars have received pay of Rs. 30 monthly, besides which Government have built lines and stables for them, and they live in a country proverbially cheap in the matter of forage. Nevertheless, considering the character of the Delhi and Rohilcund Mussulmans, the class generally furnishing the Sind horseman, it may be doubted whether they are so untrue to their habits previous to enlistment as to withstand the temptations of the bazaar, and a certain amount of debt in consequence. Assameese are sold in those regiments for what they will fetch. This again is a source of debt which, it is believed, is beyond control, notwithstanding the belief of any commanding officer to the contrary.

7. It will be observed that in the regiments of Maratta Horse, which, till recently, like the Poona Horse, were paid scantily, a certain amount of debt is owned to by commanding officers. These are not concealed debts, but are on account of arms, clothing, horses, &c. According to the manner in which a sowar is supplied, it is difficult to understand a regiment being altogether devoid of such debts, *e.g.*, a horse dies and a sowar receives a certain amount from the Horse Fund. Unless the silladar be a man of wealth, he must necessarily be put under stoppages until the difference of the value of his remount is defrayed. Such debt is perfectly legitimate, it being practised in all regular as well as irregular corps on the purchase of necessaries, &c.

8. But it is not the legitimate debts which originally gave rise to this correspondence. It is the secret and illegitimate indebtedness to sowars and others, at the root of which, in his Excellency's opinion, it is impossible to arrive, unless the practice of crying down credit, as in European corps, be introduced, and the sowar liberated from fear of arrest on account of debt so long as he is in the service, as originally recommended by Sir William Mansfield in my letter of the 26th June last.

9. With respect to the proposal of abolishing the system of bargeers altogether, his Excellency's opinion has been expressed in the negative, the reasons for which have been given in full in my letter of the 10th July last. The Commander-in-Chief has nothing to add to it, as he believes that such abolition would act very prejudically on the consequence, and therefore the importance of the Native officers in the eyes of the men if the irregular cavalry be maintained according to the principle hitherto adopted, to which more particular reference will be made hereafter. It is understood that a silladar who owns four or five bargeerships is able to make his arrangements more easily regarding forage, and therefore does more justice to his horses than the one-horse silladar. On the other hand, this leads to other abuses which will be noticed in a succeeding paragraph.

10. The system upon which the regimental funds of irregular corps in this Presidency are established, was fully shown in a letter from Major Merewether, forwarded with my Report, No. 906, of the 20th February last, being a reply to a reference from the Government of India on this subject. Under this system the State has no liability beyond the pay, pensions, and provision of ammunition of irregular cavalry.

Each sowar pays Rupee 1 monthly.
10 per cent. is paid on the sale of Assamees.
A donation of Rs. 20 is paid on the transfer of an Assamee.
All fines are paid to the fund.

11. The rate of stoppage on account of horse fund, clothing, &c. &c., varies in the different regiments, but the Commander-in-Chief recommends that a stoppage of Rs. 1-8-0 monthly be authorised in G.G.O. as the minimum to be paid by such sowar on account of such fund, and that whenever a commanding officer may deem it necessary to exceed that rate, he should make a report to headquarters and obtain sanction. It is believed that with the fund at the above rate at their disposal, commanding officers could give such assistance to the sowars as would secure excellent remounts in every part of India, and provide the corps with tents or other equipments which may be deemed indispensably necessary.

12. The above remarks lead directly to the argument on which the principle of the so-called Silladar system rests. By the advocates of that system it is asserted that Government can maintain efficient and reliable cavalry, able to go anywhere and to do anything that can be done by Natives, at a less cost than in any other manner. It is argued that the natives of distinction and family, if allowed to enter such corps, bringing their own followers with them, would render the service highly popular throughout the country. Much reliance is placed on their alleged extreme mobility and readiness for action in consequence of the declared independence of irregular cavalry of the commissariat, and their contract with the State to provide themselves with horses, forage, arms, clothing, equipments, rations, and necessaries of every description in all circumstances.

13. It is undoubtedly true, that in many of our Indian campaigns, and more especially when the irregular cavalry are marching in provinces with which they are acquainted, they have shown themselves thus independent of assistance. By great management commanding officers have been able to provide fair horses at the expense of the sowars, and they have been in general clothed and armed in a creditable manner.

14. Complaints have, on the other hand, at times been made that on a campaign the irregular cavalry become inefficient, because their horses are starved and the men are without tents, &c. It is also asserted that the irregular cavalry are more ready plunderers on account of forage, &c., than is possible with regulars, as the latter is supplied by the commissariat. His Excellency is, however, convinced by personal observations, that the propensity to plunder among the troops is the same whether they are regular or irregular, and that its repression depends on the will of commanding officers only.

15.* A case of complaint occurred in the campaign conducted by Major-General Sir J. Michel, K.C.B., who made a formal report against the regiment of Southern Maratta Horse attached to his camp, on the ground of inefficiency. It is without doubt that the officer sent hastily in command of the party was inexperienced, and the commanding officer of the regiment to which the party belonged complained that he had no opportunity of giving him the necessary instructions, owing to the celerity with which the detachment was put in motion. Since then the pay of these horsemen has been raised. On inspecting these regiments, his Excellency did not discover that they were inefficient for a campaign. They show admirable training, and the horses and arms are in fair condition. The Southern Maratta Horse have no tents, and at this time his Excellency's escort, furnished from them, bivouacked either under the trees or in a village each night. The officers commanding 2nd and 3rd regiments, Southern Maratta Horse, seem to have an objection to put their men under stoppages to buy tents, as such a course had not been enforced under previous commanding officers, although they urgently impressed on the Commander-in-Chief their opinion of the necessity of the corps being so provided.

16. The opponents of the present system urge that it can only be tested on active service, and that no display in quarters is of any avail, forage and corn being then regularly provided without strain ordifficulty; whereas, in the field, except in very favourable circumstances, the sowar is compelled by his own need to stint his horse of his fair ration at the time when, from increased exertion on the part of the animal, it should indeed be augmented.

17. It is evident that notwithstanding all that we are told of the efficiency and readiness to move of the irregular cavalry, the natural parsimony, or perhaps it may be styled the poverty, of the silladar is decidedly opposed to the interests of Government, and to the preservation of that mobility which depends on the outlay he makes on the forage, clothing, shoeing of his horse, as well as on his own necessities. What has been said about debt is doubtless true, and it is a principal cause of the parsimony and poverty which has been alluded to. But whatever is the cause there cannot be a doubt of the fact that a silladar after all is but a contractor to furnish and keep an armed mounted soldier for the State, and like all other contractors, he has only entered into the covenant in the hopes of profit to himself. It makes little difference to his part of the argument whether he be a one-horse silladar or entertains several bargeers. So impressed is he with the idea that he can make a good profit, that he pays a large sum for the assamee over and above the price of horse, arms, and accoutrements.

18. After thus analysing the assamee and the motives of the man becoming a silladar, it is clear that the State must lose in efficiency what, when represented in money, goes monthly into the pocket of the silladar. Thus it happens that the commanding officer cannot but have always to struggle against the personal interests of all the silladars in his regiment. Every Native

* See Compilation Service, No. 58 of 1859, G.O.

officer and non-commissioned officer has one or more Assamees, therefore the very authorities on which the commanding officer relies for discipline, and for maintaining efficiency in the matter of accoutrements, equipments, and the plentiful supply of forage, are all strongly interested in combining and in making such representations as may induce him to trust to measures, which, although contrary to his own views of efficiency, would tend to swell their profit or to save them from outlay. In Sir William Mansfield's opinion, whatever the pay given to the Silladar, the motive common to human nature must always be too strong, if we exclude any exceptional cases of extraordinary vigour of character like that displayed by the late General Jacob. In such a case a very absolute and despotic will is enforced, but it must, and with regard to justice should be most exceptional. If we are to believe in the merits of the system, we should not be guided by the exceptional case, and even then his Excellency has the strongest conviction that the power of deception and collusion amongst the men commanded cannot but often defeat the absolute and despotic will of the commander. It is unnecessary here to dilate on the danger of giving too free a rein generally to such absolute and despotic will on the part of the commander, however much we may desire and take measures to support his legitimate authority, as lately shown in the greater powers given to him by the new Articles of War.

19. From the foregoing remarks, his Excellency in Council will perceive that in Sir W. Mansfield's opinion there is a seriously weak point in what has been called the Silladar system. It is that point that has always made the Commander-in-Chief lukewarm in advocating an increase of pay when complaints have been made of the poverty of the silladars, and their inability to meet their engagements. His Excellency believes much of such increase of pay is looked on as downright profit by the holders of the Assamees, and that it will require extraordinary vigilance on the part of commanding officers to cause outlay on that of the silladars in proportion to the augmented rate of pay.

20. The question arises, therefore, whether the present system should be maintained, or whether attempt should not be made to mingle the two systems of regular and irregular cavalry, by which the money spent by the State should actually be all directed towards the efficiency of the soldier, his equipment, and his horse, while the character and attributes of the irregular cavalry soldier should remain as they are now?

21. More than one plan has been proposed. In the first place, to declare the sale of Assamees to be illegal, that is to say, that there should be no further property in the Silladaree than the horse, equipments, and arms of the mounted soldier, each Silladaree as it becomes vacant being given away under the patronage of the commanding officer without money consideration, except for the value of the horse, arms, and equipment, under the revision, if preferred, of the Commander-in-Chief, as in the case of the commissions of Native officers, such a course would give useful power and patronage to the commanding officer, to whom all the men of the regiment would be looking most anxiously for the exercise of it, while a very fertile source of debt would be done away with. This might have been generally done when the rates of pay were raised last year in all the regiments which benefited by them. It is difficult to see how it could be effected now with due regard to the question of actual property involved in the Assamee. It is understood that in the Punjab Irregular Force, Assamees are not saleable, and that the corps were raised on that condition.

22. A second course which has been proposed is, that the horse should not be the property of the individual Silladar but belong to the regiment generally, the owner of the Assamee being required to pay half the price of the remount on the horse becoming non-effective, the remaining value being paid out of the Horse Fund, according to present practice. It is argued that if this were the case, and the men understood that the horses were general property, they would at once comprehend the necessity of securing all the horses in forage and clothing, in short that it would be the interests of each to look after the whole. There is doubtless much in the argument, but there is an important military reason in addition. At present, if a sowar falls sick his horse cannot be mounted by another man, or if the horse becomes lame or non-effective the dismounted sowar cannot be provided for amongst the other horses of the regiment; further a practice would be discontinued which it is believed exists in some regiments, to the prejudice of duty, viz., that on service a Native officer holding half-a-dozen Assamees uses his influence to prevent his bargeers being detached one from the other, so that extra duty is often thrown upon men without interest amongst the Native officers in the corps. It is also urged by some officers that the present system affords a premium on malingering, inasmuch as it being impossible to separate horse and sowar, it follows that the man whose horse is always in good condition is sure to be called on to do more duty than the skulker, or the man whose horse is not saved from lameness or want of condition. It may be answered to these allegations, that such irregularities will take place when there is no vigilance on the part of a commanding officer, and that if permitted they are sufficient for his own condemnation.

23. In the system which has just been sketched out there is no reason why the prohibition of selling the Assamees should be enforced, although it would doubtless be a great improvement on it if it could be done with regard to the question of property. In the same manner as regards the horses so the arms, accoutrements, and equipments. Huts and lines should be the property of the corps and not of the individual man; while the provision of the baggage ponies, and of the clothing and other necessaries, should be thrown on the men themselves, the forage being provided under the orders of the commanding officer, who would have to make a monthly arrangement with owners of horses.

24. A third plan has been proposed which would have great charms for the regular cavalry officer, that being, that all the sowars of the regiment should be Government bargeers, the State paying to the commanding officer Rs. 30 a head per month, and for commissioned officers and non-commissioned officers in proportion, the commanding officer engaging to maintain the regi-

ment complete in equipments, horses, arms, in short, in everything required. It is asserted, and, with reason, that the profits now accruing to the Silladar might thus all be added to the efficiency of the soldier and his horse, while such checks might be imposed of inspection and revision of accounts as to ward off the chance of maladministration on the part of commanding officers. This third scheme is more particularly illustrated in the enclosures from Captain Ashburner, commanding 3rd Regiment, Southern Maratta Horse.*

25. With respect to adopting any one of these schemes, it will have been gathered from the previous remarks that great care would have to be observed in interfering with the property of Assamees, as in every regiment of irregular cavalry in the service, excepting perhaps the Punjab Irregular Force, this property has always been bought and sold with the knowledge, consent, and sole orders of the commanding officer, and is treated as such in the estate of a deceased man. A mistake in this matter might be productive of ruinous, if not dangerous, consequences. If it were considered desirable to make the experiment proposed by Captain Ashburner, it would be far better to do so by the organisation of an entirely new corps. It is not to be expected, however, that the Government of India would consent to any such project at present, but there seems to be no reason why the experiment should not be gradually made, it being declared that in one or more given corps the Assamees should be bought up by Government at fixed rates on sowars becoming non-effective, the price of which would be gradually repaid to the State out of the profits estimated as likely to accrue by Captain Ashburner. A rate of Rs. 400, including horse and arms, would probably be ample, due notice being given in the regiment. All Assamees becoming void by confiscation on account of misconduct would besides fall into the hands of the commanding officer for the entertainment of Government bargeers, until the whole regiment had, in the course of time, been converted. The commanding officer would have to make the regular monthly subscription to the regimental horse fund, &c., and would receive the same assistance for a remount from the fund as any other Silladar.

96. It is unnecessary to go into any further detail unless the Commander-in-Chief should be desired to make the experiment, but he doubts not that a system of check and audit might be established by which the Government would be entirely saved from loss, and a commanding officer would not be able to take greater liberties with the funds at his disposal than any other public servant. It is probable that were Government inclined to make the trial, the most favourable field for it would be in the lately converted light cavalry corps.

27. In answer, finally, to the question put by the Government of India in Sir R. Birch's letter, No. 407, his Excellency would not have it understood from the foregoing remarks that he is an advocate for any sweeping changes. He has made an attempt to describe the conflicting opinions with which his inquiries and observations had made him acquainted, and he would be willing to superintend such an experiment as that just referred to. But, on the whole, he is satisfied with the working of the irregular cavalry system as it is at present comprehended by our own officers, by the classes from which our recruits are drawn, and by Native chiefs, to whom we have recourse for large and immediate assistance in the levying of men in times of difficulty and danger, as for instance in 1857-58. His Excellency believes that to make any radical changes in that system on the ground of securing greater regimental efficiency would be imprudent, if not worse, and that our service would lose in prestige and in the attachment of the men and Native officers greatly, more than we should profit by a reconstruction, which, while based on the straight lines of exact discipline and obligation to the State, should ignore regard for old customs and the last remains of old aristocratic feeling in the native ranks of the army. His Excellency, therefore, considers that the silladar system should be maintained, and whatever the inequalities or shortcomings of that system, to which attention has unsparingly been drawn in the foregoing pages, we should trust as heretofore to the vigilance and the character of commanding officers to meet and repair them to the best of their ability.

REPORT on the QUERIES propounded in Madras Adjutant-General's Confidential Letter, No. 801, dated 5th April 1875.

1. There appears nothing on record to show that difficulties were encountered in making the so-called conversion, and had any been experienced it is probable they would have been mentioned in Adjutant-General's letter to Government, No. 1679,* dated Poona, 14th October 1868, in reply to Government Resolution, No. 4259, of 19th August 1868, in which the Government of Madras inquired the exact process by which the regular regiments of Bombay Cavalry were converted into Silladar force.

1. Were any difficulties encountered in carrying out the conversion to irregulars of the old Bombay cavalry?

* Copy attached.

2. The experience of the new system tends to show that it is not so efficient as the old regular system. It was not possible to maintain the Silladar system in its integrity in Abyssinia. In that country, as before in Persia, the commissariat was obliged to undertake the supply of the Silladar cavalry as for the rest of the army, *vide* Adjutant-General's letter, No. 1,679, above quoted, and Sir W. Mansfield's opinion as set forth in paragraphs 17 to 19 of Adjutant-General's letter to Government, No. 8,754,† dated 21st December 1861.

2. Is the new system supposed to be a success both as regards efficiency and popularity with the men?

† Copy annexed.

The new system does not appear to be unpopular with the men.

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* See Compilation, "Cavalry Irregular," No. 2 of 1861-62.

3. In the absence of any reports to the contrary the old soldiers appear to have taken kindly to the new organisation, and no fresh blood was introduced to make the new system work smoothly.

3. Did the old soldiers take indly to the new organisation, or had fresh blood to be introduced in order that the new state of things might works smoothly?

4. The objections raised by officers were numerous. In the first place, they considered the Bombay regular cavalry had proved themselves most efficient in the field; that no irregular cavalry could ever equal them; and that the conversion was false economy, which would be exemplified on active service in a foreign country.*

4. What were the objections, if any, raised by officers or men to the change; and is the present system as congenial to the taste and habits of the men as was the old, formed on the European pattern?

*This was exemplifie Abyssinia, as previously shown.

Further, that the Silladar is merely a contractor to furnish and keep an armed mounted soldier for the State, and that he enters into the covenant in the hope of profit to himself, which in quarters is probably fulfilled, but in the field, when grain and forage frequently rise to famine prices, the Silladar is compelled by his own need to stint his horse of his fair ration, and both horse and rider become inefficient.† The men raised no objections to the change, and the present system appears, from the reports of some commanding officers, to be more congenial to the tastes and habits of the men than the old, and, as before remarked, the men have taken kindly to it.

†This has to a great extent been met by allowing compensation for dearness of grain and forage when the cost of feed exceeds Rs. 15 per mensem.

5. Assamees are sold by auction to the highest bidder. They have realized on an average during the last 3½ years, at Poona, only 395 rupees. A bargeer purchasing an Assamee has to buy, in addition, the arms, &c., which amounts to Rs. 46-5-0.

5. At what cost can the trooper supply himself with a horse, and how much (taking the principal station) has he to pay for his keep?

A silladar losing his horse from disease, or being cast, has it replaced by another horse from the fund, the silladar paying 40 rupees ready cash; if not able to do so, he pays 50 rupees in monthly instalments of 5 rupees in excess of his usual monthly subscription.

The expense of keeping a horse in Poona is as follows for a month of 30 days:—

	Rs.	A.	P.
Grain	6	10	8
Grass, including grass-cutter	7	3	3
Shoes and medicine	0	4	0
Bhistee and mochee	0	8	0
Syce	3	0	0
Chunda fund	2	0	0
Total	19	9	11

COPY of a LETTER from the Adjutant-General, Bombay, to the Secretary to Government, Military Department, Bombay, No. 1679, dated 14th October 1868.

In reply to Government Resolution, No. 4259, of 19th August, in which the Government of Madras inquires the process by which the regular regiments of Bombay Cavalry were converted into Silladar Horse, I am directed to refer to the orders marginally noted, which show the process of conversion.

G.G.O., No. 674, of 4th December 1860.
G.O.C., „ 1,475, of 28th „ 1860.

The provincial Commander-in-Chief observes, that the experience of the new system in this presidency tends to show that it is not so efficient as the old regular system; indeed, a little reflection on the subject must convince anyone that such a result is but natural, and he would invite attention to paragraphs 17 to 19 of letter No. 8,754, from the acting Adjutant-General of the Army to the Secretary to Government, Military Department, dated 21st December 1861.

General Gordon has had under his observation at Poona a regiment of Madras Cavalry under the regular system, and one of Bombay Cavalry (before and since the war) under the silladar system, and the comparison is much in favour of the former corps.

The provincial commander-in-chief observes that irregular bodies of horsemen may be suitable for the service of a country in a semi-civilized state, but as the civilization of a people progresses so must also advance the regularity of their military force.

All history shows this. The headquarter offices of this army have no means of comparing the expenses of the two systems, but the Controller could do so, and the provincial Commander-in Chief would like to see such a statement before it is sent to Madras.

With regard to the last query by the Madras Government as to the Silladar system in the late expedition, I am directed to say that it was not possible to maintain the system in its integrity in Abyssinia.

In that country, as before in Persia, the commissariat were obliged to undertake the supply of the Silladar Cavalry as of the rest of the army, under the provisions of Government of India G.O., No. 1,104 of 1867.

Bombay G.G.O., No. 714, of 11th December 1867.

MADRAS CAVALRY.

1. As said before, the men who enter our service as cavalry soldiers have not the means of serving as silladars. Granted that Government make a present to them of horse, arms, and equipment to start with, how are these to be maintained when there are no funds? Government would have to do this, as now. How could the "Chundah" Fund be established by men

who live from hand to mouth? It is believed that this fund in Bengal irregular regiments was founded and is kept up by deposits of certain sums made by men on entering the service, and by contributions from their monthly pay. Many men no doubt had to borrow, and have to do so now, and are in debt, but however it may be, the cavalry recruits of Southern India have not the means of establishing such a fund, and consequently they cannot maintain themselves as silladars.

The state of officers in debt is an acknowledged terrible impediment to their efficiency, but a thousand times more so is it when Native soldiers are in debt to their Native officers and the regimental soucars. Must we not consider the idea of wiping out old scores as a powerful incentive to engender and sustain commotion? It may at once be concluded that if this conversion be effected Government will have to supply the funds to keep the system working, and after all we shall not have established the Silladar system, but only an approach to it, as at present in Bombay. Against the proposed conversion, and in favour of keeping as far as possible to the regimental system, I would emphatically urge the question of *discipline.* By this I do not simply mean the outward behaviour of the men and their respect for superior authority, but I refer especially to the state of readiness of a regiment to take the field, and the facility with which it can be worked in the different phases of a campaign. Where Native soldiers are under the direct control and influence of Native officers I cannot justly expect to find the state of discipline I consider indispensable in our regiments. Suppose that one or more Native officers are at variance with their British commanding officer, and their regiment is suddenly ordered to march, or to undertake some distasteful duty (probably putting the men to extra expense), might I not naturally expect the execution of my orders to be retarded, and perhaps my plans frustrated? It can scarcely be doubted that this fatal evil was fully recognised when the plan was formed of gradually improving the wild horsemen of past times into the present modern light cavalry. The famous success of the measure is well known. A return to the antiquated form would certainly be a strange and unaccountable act. Connected with this modern and regimental system (infantry as well as cavalry) there is one vital principle which seems to have been lost sight of; I allude to the supreme influence, from direct contact, which the British officers (captains of companies and troops, especially) exercised over their men when the former were in a due proportion to the latter. No one I fancy will contest that the success of our arms in this country has been due to this influence of the British officer on the one part, and to the confidence placed in him by the Native soldier on the other. But now it is unhappily pressed upon us to reverse all this, and we are in fact, with singular fatality, now engaged in transfering to the Native officers that direct imposing influence over the Sepoy which heretofore has been, and still ever should be, the attribute of the British officer. I deplore the measure, and I here, as Adjutant-General of this Army, record my conviction that it is both unwanted and unwise.

2. That a due proportion of cavalry to the other arms should be kept on foot, in any army deserving of the name, has been so widely proclaimed and acknowledged during the last few years, that there is no necessity of alluding to the arguments on the matter. I state, however, that though the tactical strength of cavalry is in its physical force, yet there are other very important matters in war besides charging the enemy, which fall to the lot of cavalry; hence, an army is not efficient which has not a cavalry in sufficient numbers to perform cavalry duties, duties which may bring about incalculable success or the reverse according as they are well or ill fulfilled.* This being well known, I ardently protest against the scheme by which our cavalry would be further reduced. Even if our four regiments are recruited up to 380 sabres each, we should then only have a proportion of 1 Native cavalry man to 19·3 Native infantry; or taking the proportion of British and Native cavalry to British and Native infantry, we get 1 cavalry soldier to 15 infantry, while in Europe I believe that the proportions stand as noted in the margin, and these we may well believe have not been arrived at without the most profound consideration.

* Is it forgotten how bitterly the late Sir H. Havelock lamented his deficiency in cavalry? or how, later, General Douai did the same, when, with his *division*, sent on a most important mission to Wissenbourg, he only knew of the whole 3rd German Army Corps being upon him from the reports of the villagers?

1 N. Cavalry - - to 19·3 N. Infantry.
1 (B. and N.) Cavalry to 15 (B. and N.) Infnty.

	Cavalry.		Infantry.
England - - -	1	to	7
Prussia - - -	1	to	7
France - - -	1	to	7·5
†Italy - - -	1	to	11

†In Italy the riflemen (Bersaglieri) (a distinct class) form one-sixth of the infantry, but in England they are only one-ninth as put down for an army corps.

As far as I can learn the Punjab Frontier Force has a proportion of 1 to 3, and the Hydrabad Contingent about the same, or perhaps greater.

If our cavalry be reduced to three regiments of 380 sabres each, we shall have a proportion of 1 cavalry soldier to 18·1 infantry. This, in a country like India, where climate, distances to be traversed, sparse population, importance of early intelligence, everything tells us that cavalry rather in exaggerated proportions should be maintatned.

Last year when writing on this subject, I said that 10 officers per regiments were absolutely necessary for a cavalry regiment. This would give us but two executive officers per squadron, and little enough truly, seeing that four are not too much for a British squadron.

(Signed) R. C. Stewart, Brigadier-General,
Adjutant-General.

10th July 1875.

Minute by the Hon. W. Robinson, C.S.I.

I cordially endorse his Excellency the Commander-in-Chief's assurance, that whichever organisation of Native cavalry may be finally ordered by higher authority will be loyally carried out by this Government, and I share his anxiety that the existing sad condition of this branch of our military service may be shortly brought to an end at whatever cost.

2. I also most heartily support his opinion that the change from the *Regular* to the *Silladar* organisation for our Native cavalry is to be greatly deprecated.

3. I have, under peculiar circumstances, had some opportunities of studying the organisation, condition, and working of the *Silladar* system, and of learning much about it—as it presents itself in Mysore and the Hyderabad countries—in connexion with the management of the Kurnool Irregular Horse, which devolved on me for a couple of years, about 1859 to 1861, as inspector-general of police, and I venture to think that the *Silladar* is very inferior to the *Regular* organisation from an executive and disciplinary point of view. It is, I found, ill-suited to the existing circumstances and military races of this Presidency, and it seems to be scarcely suited to the exigencies of actual warfare as now carried on. I need scarcely call to mind that the Kurnool Irregular Horse were disbanded in a great measure because of anomalies inherent in the system, which depreciated most seriously their efficiency, discipline, and usefulness.

4. The obsolete *Silladar* system of South India has always appeared to my limited experience and humble judgment to have been a haphazard, ill-regulated Native institution, based perhaps on a clannish condition of military races which no longer exists in this Presidency, and if it do exist, had better die out. The Silladar organisation has appeared to me to be the outcrop of crude and uncertain political conditions—when deficient treasuries rendered efficient equipment and civilised commissariat arrangements impossible, the result of a low state of military science, and characteristic of lawless and marauding warfare. So far then as my humble judgment goes, guided in part, no doubt, by my observation of the decayed and restricted (perhaps unmanned) forms of it which survive in South India (including the Kurnool parody above alluded to), I hold that the early builders of our military ascendency in this Presidency did well to let this Native system pass away with the political conditions which had probably called it into existence, and I strongly deprecate its revival amongst troops who have enjoyed a more scientific and civilised organisation for three quarters of a century or more.

5. The proposed change is not coveted by the men whom it is desired to make the subjects of it, either for themselves or for their descendants; the system is certainly unsuited to their circumstances of poverty, and must be attended with cares and claims on him which the Native trooper of Madras is not likely to fulfil except under great pressure. The change is deprecated by the ablest officers of this branch of the surface, and no wonder, where discipline meets so many drawbacks. The change is, in fact, hailed by none as an assured improvement. Under these circumstances is it desirable to force a change?

6. I have nothing before me to show the relative cost of the two systems. I doubt whether the saving to be effected by the change is not exaggerated; but admitting that it may be considerable, it does not follow that a cheap cavalry is a reliable and useful arm. I believe that the experience of scientific warfare is the reverse. The system proposed has apparently invariably proved, as it naturally must, a failure on foreign service for which all Madras troops are enlisted, so far as independence of the commissariat and equipment, &c. is concerned. While on home service it must be difficult to restrain the temptation to maraud,* when in the field, under an organisation and system of supply of the kind named.

* N.B.—Our experince of the Kurnool Horse was very significant in this respect.

7. I do not think that the testimony from Bombay, where the introduction of such a change had greater facilities than here, and where irregular mounted corps were in existence beforehand, is calculated to encourage acceptance of the proposed change without fuller experience, nor do I think that by following the example set in Bombay we could really resuscitate in spirit or restore the necessary conditions and circumstances of the old Native institution within this Presidency.

8. On the whole I would support his Excellency the Commander-in-Chief's view, and earnestly deprecate the meditated change to another inferior organisation. I would urge that this arm of the service be recruited at once up to the sanctioned strength, and continue to be officered by a proper complement of European officers.

30th June 1875. W. Robinson.

Minute by the Hon. R. S. Ellis, C.B.

So far as I am able to form an opinion, the time has gone by, in the greater part of India, when native gentlemen of high rank, or military adventurers of reputation, brought into the service of the State bodies of armed and mounted followers, for whose efficiency, both in quarters and in the field, they were responsible. In the irregular troopers of the present day we no longer find that attachment of feudal retainers to their chieftains which contributed so much to the reputation of the old irregular cavalry. So far from this, the Silladar of the present time has been described by high military authority as being but a contractor to furnish and keep an armed mounted soldier for the State, open to the same temptations of gain to the detriment of the service as all other contractors. This change would, in itself, seem a strong reason against maintaining a system which has now lost its best and most characteristic elements.

2. Again, another great advantage supposed to belong to the Silladaree system was its extreme mobility, and its independence in time of active service of the commissariat, but the latest experience of irregular cavalry on foreign service would seem to show that it had no longer this merit of independence. From these papers it appears also that when Native cavalry regiments on the regular system are seen side by side with irregular mounted corps, the preference is given by competent and impartial observers to the regulars.

3. It would therefore seem that the sole advantage possessed by the irregular system is its supposed comparative cheapness. Of this I am unable to form an opinion from the papers in

circulation, but I trust that this sole advantage will not unduly affect a decision on which such important results depend, and that thorough efficiency will not be sacrificed to doubtful economy.

4. Whatever system is finally adopted must, I think, be accepted by all the armies of India, and I confess I can see no reason why a regular system of cavalry should be retained in the Madras army only. The decision will, I trust, give all India a thoroughly efficient Native cavalry, and if the form adopted is that of irregulars, I am confident that we shall not fail in this Presidency to furnish as good irregular troopers as those from other parts of India.

5. In Madras, as in Bombay, our cavalry officers and troopers earnestly wish to retain the system under which they have earned the reputation of thoroughly efficient soldiers, but both officers and men will gladly accept any system which will restore their regiments to their full strength. I trust that a settlement of the question will no longer be delayed, and that the Madras army will not remain, as at present, with its cavalry curtailed in number and depressed in spirit.

1st July 1875. R. S. Ellis.

Minute by the Hon. W. Hudleston.

There seems to me to be no room for two opinions as to the inexpediency of the proposed conversion of our Madras Regular Cavalry into a body of Silladar Horse.

His Excellency the Commander-in-Chief is strongly opposed to it.

All the experienced commandants of our cavalry whom he has consulted are unanimous in condemning it.

The feeling of the men themselves whom it is proposed to transmute, so far as they have been sounded, is most antagonistic to it. They would view the change with dislike, and with a sense of being disgraced by being degraded to a lower level of organisation, and with a strong feeling of distrust as to the motives of the Government which exposed them to this undeserved opprobrium.

All the traditions of the class from which we recruit our cavalry are adverse to it. There is no memory among them of a Madras cavalry on the Silladari system. And it is to be remembered that the traditions of English government and administration stretch back farther in this Presidency than almost anywhere else in India.

The experimental conversion, when it has been tried, has evidently been anything but a success. Sir W. Mansfield's expression of approval as Commander-in-Chief of the Bombay Army is most guarded, and it is quite evident that evils are anticipated in the future which there has not yet been time to develope.

2. That the organisation is itself of inferior order there is no room to doubt.

The superiority of the Madras Regular Cavalry over the converted Bombay Irregulars is decidedly expressed by the Bombay Commander-in-Chief.

3. It has proved impossible to maintain the Silladar system in its integrity on foreign service, and these irregulars have had to be rationed, and their horses fed, by the commissariat, as all the regular troops. Even the advocates of the system admit the inability of the men to provide themselves with camp equipage for the field. Chronic and heavy indebtedness, and a consequent liability to fail in effectiveness on emergency, are evidently dreaded by those who have come to rely on the system.

I can see no redeeming point in it.

4. The ideal of the system is when a man of wealth and old descent and family influence leads his retainers to our standard. We have not the material to supply this form of force.

5. Then comes the stage where wealth and consequent influence of another kind enable a man of enterprise and soldierly aspirations to attain a position of some eminence in the force by providing a certain number of troopers with horses and accoutrements.

6. The next stage is one which has evidently been in some measure attained, when the Silladar degenerates into a mere mercenary contractor to provide men and horses, &c., and whose object is to make what profit he can out of the transaction, without regard to more than surface efficiency so as to pass muster in garrison or cantonment.

7. A principal objection which always suggested itself to me against the adoption of the system on our side, was the certainty that the men must speedily become encumbered with debt and practically inefficient in consequence.

I have been much struck with the evident apprehension of the existence of this defect which is manifested where the system has been adopted. Its non-existence, even when denied, is evidently not credited. I do not see how it can possibly be avoided. Evidently nothing but the fact that the Government made over to the men arms, horses, and accoutrements in free gift has saved the converted Bombay cavalry from already exhibiting this defect, and as evidently its development is only deferred.

I feel quite certain that on our side it would speedily ensue on the change.

8. Then what have we to gain by the change?

The superiority of our present organisation is unquestioned. I am quite certain that on the two or three occasions when any dissatisfaction has arisen with the conduct of our Madras troops, we ourselves have been to blame and not the men.

9. It is a very significant fact that in the Nizam's territory, where is the most efficient body of irregulars of which we have much cognizance, the very able minister makes no effort to

extend the organisation, but devotes his attention to raising a regular force of horse and foot, and attracts to it the disciplined men whom we disband from our own army.

10. Were the conversion made on our side we might doubtless attract more recruits for the irregulars from Hyderabad than we should readily find in our own territory, a result which would be politically most undesirable. I see it has been suggested by one advocate of the Silladar system that the Madras force might be leavened or more with Punjab men and others from the northern provinces where the system prevails. I can scarcely conceive a more objectionable method of occupying a country, unless it were an object to dragoon the inhabitants into submission, and to ensure antipathy between them and the Government troops.

11. The only advantages which seem to be suggested to us as attaching to the proposed conversion are comparative inexpensiveness and uniformity of system.

12. Economy coupled with inefficiency is about the dearest bargain a State can possibly effect.

13. There is nothing to lead us to suppose that economy with efficiency has been attained by the conversion where it has been carried out. On the contrary, the evidence goes to show that either the saving must be merely apparent, and that the State will be compelled to step in again and provide the funds needed to secure efficiency, or that the force must become inefficient.

I feel satisfied that the same result would be inevitable on our side.

14. As to uniformity, I confess that I cannot see so much advantage in it that efficiency should be risked, *if* haply *it* may be attained. In Northern India there was no question of *conversion.* The regular cavalry had vanished. It was a comparatively recent creation out of irregular elements. All the circumstances of the country were and are favourable to the levy and improvement of an irregular force. The materials for raising cavalry on the Silladar system are present in abundance, and indeed it is a political object to attract them to our standard.

15. With us the very opposite is the case. We have at least the nucleus of a Regular Cavalry force, which, though now unfortunately but a remnant of a distinguished body of men, still extorts admiration and approval from the most competent judges when it comes under review. The men are proud of its traditions. Their families are eager to enlist in it—indeed it is the one respectable career in life for which they can hope, and in my opinion it is politically important not to close it to them. The Irregular system is a thing of which they know little and think less. They consider it, and justly, as an inferior organisation to what they have known all their lives, and to what their fathers before them were attached. The Silladari system in its perfection they know they cannot attain to, and be it said—could we attain to it—we should but have taught the people how most readily to raise forces against ourselves in case of disaffection. If we force upon them the alternative of enlisting under the so-called Silladar system, or standing aloof and abandoning all hope of the one career in life which had attraction for them, we shall doubtless obtain men, but they will not be recruits such as we attract to the Regular Cavalry, full of hope and free from care, looking to their regiment as an hereditary and honoured home, and to the Government as a protecting lord entitled to their willing service. We shall get men with the sure prospect of heavy debt before them (if not already heavily encumbered), as the inevitable condition of a military career, with little hope in the future of freedom from this burden, and with the depressing sense of becoming the hirelings of a soucar whose profit can only be secured by lessening their efficiency.

16. I confess to feeling as strong an antipathy to the proposed change as it is decorous to express in an official paper.

17. Having said so much, I need scarcely add that I should most unwillingly concur in adopting the change. But the expression of a strong conviction of the unwisdom and impolicy of the measure is quite compatible with the desire and intention loyally to make the best of the course which superior authorities may decide on adopting, and I am free to confess that the evils I cannot but anticipate from the introduction of the Silladari system here are scarcely, if at all, greater than those which are imminent from allowing our Regular Cavalry to sink into a skeleton force of superannuated veterans. The present position of affairs is most distressing, and replete with evil and danger. We are risking alienating the attachment of our troops, destroying their self-respect, evoking the contempt of those ill-affected to Government for the force we profess to maintain, and gaining no one advantage whatever.

8th July 1875. W. HUDLESTON.

MINUTE by HIS EXCELLENCY the COMMANDER-IN-CHIEF.

The Madras Cavalry.

The question immediately before us is, whether the Madras Cavalry should be retained as Regulars and maintained on its present organisation, or converted into Irregulars and reorganised on the Silladar system. On this point I am glad to recognise a singular unanimity of opinion in my honourable colleagues, and complete concurrence in the views I have put forward in the Adjutant-General's letter of the 25th June. They are the result of careful and anxious thought, and I have but little to add to them.

2. I concur with the Honorable W. Hudleston in considering that uniformity in organisation in the cavalry is by no means necessary in this instance, nor is it desirable as a general principle to seek to establish uniformity between the three armies; rather would I foster the little divergences which the varied circumstances of place and race may have introduced into each, and which have been maintained as suitable, than to introduce a dead level in our military system. This desire for uniformity has in my mind been one of the banes of the services in recent years. I assert again that the more distinct the three armies are kept the one from the other, the better for the empire.

3. I had intended observing on the danger of maintaining a body of troops heavily burdened with debt, but Mr. Hudleston has so fully occupied the ground that I have only to record my entire concurrence in his views. I would merely remark, that the incidence of debt would be certain in the event of one of the impecunious men with whom we have to deal losing the horse, which we assume would be presented to him by Government. Where is he to find the 40 rupees with which he would have to supplement the grant from the Chunda Fund.

4. There is one point in connexion with the reorganisation of the cavalry to which no allusion has been made, but which is of vast importance, viz., the strength at which it is to be maintained.

5. It has always been assumed that when the conversion or reorganisation shall take place, the cavalry is to be reduced from four to three regiments, the strength of each to be at, say, 380 sabres. I protest against this arrangement as providing a totally insufficient force of cavalry for this army. In European warfare it is established that cavalry should be as 1 to 7 of infantry. Is there anything in the nature of this country, or of our possible enemies in or about it, to justify our lowering the proportion of cavalry to the rest of our force? Why our four regiments at 380 sabres each give us a mere skeleton, say 1 to 18, on which to expand in case of war.

6. I would draw attention to the fact that there are now four military districts in this Presidency in which there is not a single cavalry soldier, and in which as a consequence the three arms cannot be worked together. This cannot fail to affect injuriously the working and efficiency of the troops and the training of superior officers. This is a very serious matter, especially when we consider the time regiments remain in each station,—European infantry three years, Native infantry five years. It thus may happen to a corps that it shall not be quartered with a cavalry regiment for a space of ten years, a period in which a man may well forget the nature of cavalry operations altogether.

7. We have recently had to consider the possibility of preparing a force for actual war. The provision of Native cavalry sufficient for orderly and escort duties is by no means an easy matter. I would therefore earnestly press on Government the necessity of providing such a force of cavalry for this Presidency as would enable us to place a force in the field with a due proportion of that arm attached to it. It is trite to remark that cavalry soldiers are not made in a day.

9th July 1875. RED. P. HAINES.

From Colonel T. GILLILAN, Controller of Military Accounts, to Colonel A. C. SILVER, Secretary to Government, Military Department.—Dated Fort Saint George, 3rd July 1875, D.

In reply to your telegram of yesterday's date, I have the honour to observe that some time ago I had prepared in this office statements of the expenditure of a regiment of each arm of the service (European and Native), with the intention of obtaining similar statements from the Controllers of the other Presidencies, in view to instituting a comparison between them; I regret to say I have not yet obtained the latter, but I am thus enabled to send you at once a statement under various heads of the expenditure of a Madras Cavalry corps. I think it advisable to forward the statement complete, as you can readily deduct such items as may not be necessary for your purpose.

2. I regret I have not the means of giving an equally complete statement of the expenditure of a Bengal Irregular Corps, but that herewith sent is compiled from the Budget estimate, and must be regarded as an approximate calculation.

3. I have not included "ordnance charges," as it is not quite understood what is meant, bu they may be assumed as equal in both.

STATEMENT of the ESTIMATED COST of a Regiment of Bengal Irregular Cavalry, compared with that of a Regiment of Madras Native Cavalry.

No.	Bengal Irregular Cavalry.	Rate of Pay per Mensem.	Total Pay per Mensem.	Total Pay per Annum.	No.	Madras Native Cavalry,	Rate of Pay per Mensem.	Total Pay per Mensem.	Total Pay per Annum.
		RS. A. P.	RS. A. P.	RS. A. P.			RS. A. P.	RS. A. P.	RS. A. P.
1	Commandant - - -	—	827 14 0		1	Commandant - - -	—	827 14 0	
1	2nd in Command and Squadron Officer.	—	827 14 0		1	2nd in Command and Squadron Officer.	—	827 14 0	
1	2nd Squadron Officer - -	—	640 14 6		1	2nd Squadron Officer - -	—	640 14 6	
1	3rd do. do. - -	—	374 1 0		1	3rd do. do. - -	—	374 1 0	
1	Adjutant - - -	—	374 1 0		1	Adjutant - - - -	—	374 1 0	
1	Squadron Subaltern - -	—	374 1 0		1	Squadron Subaltern - -	—	374 1 0	
1	Do. - - -	—	225 12 0		1	Do. - - -	—	225 12 0	
1	Medical Officer - - -	—	800 0 0		1	Medical Officer - - -	—	800 0 0	
					1	Veterinary Surgeon - -	—	377 8 0	
					1	Riding Master - - -	—	272 0 0	
				53,335 2 0					61,129 2 0
1	Ressaldar, 1st class - -	—	300 0 0		2	Subadars, 1st class - -	119 0 0	238 0 0	
1	Do. 2ndclass - -	—	250 0 0		2	Do. 2nd class - -	101 8 0	203 0 0	
1	Do. 3rd class - -	—	200 0 0		2	Do. 3rd class - -	91 0 0	182 0 0	
1	Ressaidar, 1st class - - -	—	150 0 0		3	Jemadars - - - -	40 0 0	120 0 0	
1	Do. 2nd class - -	—	135 0 0		3	Do. - - - -	32 0 0	96 0 0	
1	Do. 3rd class - -	—	120 0 0		31	Havildars - - - -	20 0 0	620 0 0	
1	Woordie-Major - - -	—	150 0 0		24	Naigues - - - -	16 0 0	384 0 0	
2	Jemadars, 1st class - -	80 0 0	160 0 0		7	Trumpeters - - -	16 0 0	112 0 0	
2	Do. 2nd class - -	70 0 0	140 0 0		6	Farriers, 1st class - -	18 13 10	113 3 0	
2	Do. 3rd class - -	60 0 0	120 0 0		7	Do. 2nd class - -	16 10 4	116 8 4	
52	Duffadars - - - -	38 0 0	1,976 0 0		300	Privates - - - -	9 0 0	2,700 0 0	
1	Farrier-Major - - -	—	38 0 0		40	Recruit and Pension Boys - -	3 8 0	140 0 0	
1	Salootrie - - - -	—	38 0 0						
6	Trumpeters - - -	34 0 0	204 0 0						
377	Sowars - - - -	27 0 0	10,179 0 0						
1	Assistant Salootrie - - -	—	27 0 0						
6	Farriers - - - -	27 0 0	162 0 0						
				1,72,188 0 0					60,296 8 0
	Command, Staff and Horse Allowances.					*Command, Staff and Horse Allowances.*			
	Commandant - - - -	—	700 0 0			Commandant - - -	—	700 0 0	
	2nd in Command and Squadron Officer.	—	300 0 0			2nd in Command and Squadron Officer.	—	300 0 0	

No.	Bengal Irregular Cavalry.	Rate of Pay per Mensem.	Total Pay per Mensem.	Total Pay per Annum.
	Command, Staff, and Horse Allowances—cont.	RS. A. P.	RS. A. P.	RS. A. P.
	2nd Squadron Officer - -	—	210 0 0	
	3rd do. do. - -	—	180 0 0	
	Adjutant - - - -	—	250 0 0	
	Do. for Office - - -	—	50 0 0	
	Squadron Subalterns - -	150 0 0	300 0 0	
	Medical Officer's Horse Allowance -	—	60 0 0	
	Trumpet-Major - - -	—	5 0 0	
	Kote Duffadars - - -	9 0 0	54 0 0	
	Pay do. - - -	6 0 0	36 0 0	
	Mess Allowance - - -	—	100 0 0	
				26,940 0 0
	Educational Establishment.			
1	Schoolmaster - - -	—	12 0 0	
1	Do. - - - -	—	7 0 0	
	Allowance for School Shed - -	—	5 0 0	
	Do. for School Books and Stationery.	—	15 0 0	
				468 0 0

No.	Madras Native Cavalry.	Rate of Pay per Mensem.	Total Pay per Mensem.	Total Pay per Annum.
	Command, Staff and Horse Allowances—cont.	RS. A. P.	RS. A. P.	RS. A. P.
	Senior Squadron Officer - -	—	210 0 0	
	Junior Squadron Officer - -	—	180 0 0	
	Adjutant - - - -	—	250 0 0	
	Do. for Office - - -	—	50 0 0	
	Squadron Subalterns - -	150 0 0	300 0 0	
	Medical Officer's Horse Allowance -	—	60 0 0	
	Subadar-Major - - -	—	25 0 0	
	Regimental Havildar-Major -	—	10 0 0	
	Trumpet-Major - - -	—	14 0 0	
	Farrier-Major - - -	—	21 0 0	
	Native Adjutant - - -	—	17 8 0	
	Drill Havildar - - -	—	10 8 0	
	Drill Naigue - - -	—	7 0 0	
	Troop Havildar-Majors - -	2 0 0	12 0 0	
	Orderly Havildars - - -	1 13 10	11 3 0	
	Rough Riders, 1st class - -	5 4 0	31 8 0	
	Do 2nd class - -	3 8 0	21 0 0	
	Mess Allowance - - -	—	100 0 0	
				27,968 4 0
	Educational Establishment.			
1	Schoolmaster - - -	—	12 0 0	
1	Do. - - - -	—	7 0 0	
	Allowance to Pupil Teachers -	2 0 0	4 0 0	
	Do. for Pyall Schools -	10 0 0	10 0 0	
			33 0 0	
			396 0 0	
	Annual Allowance for School Books and Stationery.	—	170 0 0	
				566 0 0

STATEMENT of the ESTIMATED COST of a Regiment of Bengal Irregular Cavalry, compared with that of a Regiment of Madras Native Cavalry—*cont.*

No.	Bengal Irregular Cavalry.	Rate of Pay per Mensem.	Total Pay per Mensem.	Total Pay per Annum.	No.	Madras Native Cavalry.	Rate of Pay per Mensem.	Total Pay per Mensem.	Total Pay per Annum.
	Subordinate Medical and Fixed Hospital Establishment.	RS. A. P.	RS. A. P.	RS. A. P.		*Subordinate Medical Establishment.*	RS. A. P.	RS. A. P.	RS. A. P.
1	Hospital Assistant, 2nd class -	—	40 0 0		1	Hospital Assistant, 2nd class -	—	40 0 0	
1	Do. 3rd class -	—	25 0 0		1	Do. 3rd class -	—	25 0 0	
1	Shop Coolie - - -	—	5 0 0		2	Veterinary Pupils - - -	14 0 0	28 0 0	
1	Mate Bearer - - -	—	5 0 0		2	Toties - - - -	7 0 0	14 0 0	
3	Bearers - - - -	4 0 0	12 0 0						
1	Bheestie - - - -	—	5 0 0						
1	Sweeper - - - -	—	6 0 0						
				1,176 0 0					1,284 0 0
	Native Followers.					*Native Followers.*			
2	Lascars - - - -	5 0 0	10 0 0		6	Jemadar Syces - - -	8 12 0	52 8 0	
6	Bheesties - - - -	4 8 0	27 0 0		166	Syces - - - -	5 4 0	871 8 0	
1	Chowdry - - - -	—	11 0 0		391	Grass-cutters - - -	4 0 0	1,564 0 0	
1	Mustsuddy - - - -	—	5 0 0			*Quartermaster's Establishment.*			
2	Weighmen - - -	4 0 0	8 0 0		1	Chowdry - - - -	—	14 0 0	
					6	Puckallies - - - -	10 11 10	64 7 0	
					1	2nd Tindal - - - -	—	7 0 0	
					6	Lascars - - - -	6 5 4	38 0 0	
					2	Peons - - - -	6 0 0	12 0 0	
				732 0 0					31,481 4 0
	Contract Allowances.					*Contract Allowances.*			
	Forge Allowance - - -	—	60 0 0			Allowance for Squadron Officers	43 0 0	129 0 0	
	Allowance to Squadron Officers -	30 0 0	90 0 0			Do. for Squadron Subaltern for Writer and Stationery.	—	30 0 0	
	Do. to Squadron Subalterns for Writer and Stationery.	—	30 0 0			Do. for Head and Heel Ropes	2 0 0	782 0 0	
						Do. for Gram Pots - -	20 0 0	120 0 0	
						Do. for repair of Butts and Targets.	—	4 0 0	
				2,160 0 0					12,780 0 0

No.	Bengal Irregular Cavalry.	Total Pay per Annum.
		RS. A. P.
	Brought forward - -	2,56,999 2 0
	Add—	
	Good Conduct Allowance - - - - -	5,116 0 0
	Allowance for Filth Cart - - - - -	42 8 0
	Total Estimated Cost of a Regiment of Irregular Cavalry of Bengal, per annum - -	2,62,157 10 0

No.	Madras Native Cavalry.	Total Pay per Annum.
		RS. A. P.
	Brought forward - -	1,95,505 2 0
	Add—	
	Conservancy Establishment - - - - -	720 0 0
	Family Allowance to Women and Children - - -	810 0 0
	Good Conduct Allowance - - - - -	4,278 0 0
	Clothing - - - - - - -	4,292 0 0
	Feed of Horses - - - - - - -	20,035 0 0
	Hospital Supplies - - - - - - -	377 4 0
	Barrack Supplies - - - - - - -	105 4 0
	Hutting Money - - - - - - -	364 0 0
	Rice Money - - - - - - -	8,558 0 0
	Annual Cost of Remounts drafted into Corps, calculated at 10 per cent.	17,500 0 0
	Total Estimated Cost of a Regiment of Native Cavalry of Madras per annum - - -	2,52,544 10 0

Fort Saint George,
3rd July 1875.

(True copies.)

(Signed) T. GILLILAN, Colonel,
Controller of Military Accounts.

(Signed) A. C. SILVER, Colonel,
Secretary to Government.

Organisation.—Native Army.

FROM Colonel H. K. Burne, C.B., Secretary to the Government of India, Military Department, to the Secretary to Government, Fort St. George, Military Department (No. 162A, Organization Native Army, dated Fort William, the 3rd March 1876).

Having reference to the very large number of men now wanting to complete in the four regiments of Madras Light Cavalry, and also to the entire absence of young soldiers in that branch of the army, owing to the suspension of recruiting for several years past, I am directed to request you to inform his Grace the Governor in Council, that the Governor General in Council in anticipation of the sanction of Her Majesty's Government authorises recruiting being recommenced in these regiments.

2. I am to suggest that the large number of vacancies now existing should only be filled up gradually, and as horses are available, by the enlistment of thoroughly eligible recruits, and it must be a condition of enlistment with each recruit that he takes service subject to any changes that may be ordered by Her Majesty's Government in the system or organisation of the Madras Cavalry.

3. No more recruits are to be enlisted than will suffice to complete the regiments to the old establishment of 300 privates each, including the quota allowed for the body-guard of his Excellency the Governor, but as the enlistments will be gradual, it will no doubt be some time before this establishment is complete.

Exd. J. Kennedy.

No. 1.

No. 187 of 1876.

Military Department.

To the Most Honorable the Marquis of Salisbury, Her Majesty's Secretary of State for India.

MY LORD MARQUIS,

WITH reference to your Lordship's telegram of the 13th instant, we beg to enclose two copies of a memorandum by his Excellency Lord Napier of Magdala, dated the 28th October 1875, commenting on the opinions of the Madras and Bombay authorities on points in connexion with the organisation of the Native Army in India.

We have, &c.

(Signed) LYTTON.
F. P. HAINES.
H. W. NORMAN.
A. HOBHOUSE.
E. C. BAYLEY.
W. MUIR.
A. J. ARBUTHNOT.
A. CLARKE.

Simla, the 17th July 1876.

REPLIES from the COMMANDER-IN-CHIEF, MADRAS.

Sir F. Haines considers the mode of supply of young officers from British regiments a failure, as they do not come forward in sufficient numbers to meet the demands of the Madras army, and the British regiments are injured by their removal.

In the Bengal Presidency the supply has been at times in excess of the demand. Owing to exceptional causes, a suspension, and then a sudden increase to the demand, there is at this moment a deficiency of recorded candidates, but I believe that will be remedied as soon as the demand is known.

It is believed that the inconvenience to the British regiments may be removed by an equal distribution of those candidates who may be assumed as probable applicants for the Staff Corps, among the British regiments stationed in India.

This subject is discussed in my note, dated Simla, October 1875.

The falling off in the demand for the Madras Staff Corps may be fully accounted for by the shadow of impending reduction of the Madras Army, which has been threatened for some years,

and still more by the slowness of promotion caused by the actual reductions of former years and the diminution of retirements.

A service that has commandants of 35 years, 2nd in command of 32 years, wing officers of 27 years, and wing subalterns of 19 and 20 years, can offer very little attraction to young men in a British regiment, especially when the tone of the officers of the Madras Native army must take its colouring from this circumstance. The remedy is to be found in effective measures for providing for the retirement of the old officers, thus producing a fair state of promotion; and also in a definite settlement of the question of the organisation.

Sir F. Haines objects to any officers being taken from the army for civil employ, but would not entirely close it.

If permitted, it should involve their ceasing to have any claims to return to military duty.

2. The circumstances of India still require military men in certain civil and political situations, and probably will continue to require them.

The present organisation looks to these officers as a reserve in case of emergency. The supply for civil miscellaneous duties cannot therefore be cut off, but it should be so regulated as to cause the smallest amount of injury or inconvenience to the Native regiments.

Sir F. Haines considers that the number of officers is insufficient both for peace or war, and recommends a scale of officers which would consist of—

1 lieutenant-colonel.
1 major.
4 captains.
6 lieutenants.
4 sub-lieutenants.

Total - 16

Of these, if three are staff, and five absent on sick or other leave, there would remain six company officers, and the regiment should be composed of six companies of 100 men each.

3. This proposal for the establishment of officers is to provide always six company officers, and is connected with the formation of the regiment into six companies.

This number of 16 officers, or two-thirds of the old complement, is an intermediate measure between the old regular complement and the present one. But it is doubtful whether it would always secure an officer with each company, and the Native officers, not being taught and trained to command, their companies could not be expected to do so.

The formation of the regiment in six companies would be in so far less convenient than the present regiment of eight companies, that it would not admit of expansion without making unwieldy companies, or requiring the formation of new companies, for which the machinery of native officers and non-commissioned officers would not be ready.

The present organisation of eight companies admits of a regiment being raised to 800 men, by the simple addition of 25 men per company.

The measure proposed by Sir F. Haines would entail the expense of more than double the present complement of officers, and the question of the allowances would present difficulties. If the allowances were to be on the same scale as at present, the expense of the 16 officers would be very great, while the reason for the increase over the former allowances, that of a more responsible charge, would cease.

The Native officers have been to a certain extent improved, and further improvement may be expected; but under the most favourable circumstances they can never be expected to be found qualified to command troops and companies so as to dispense with the British officers.

4. This is the main point of objection. In the absence of anything to show that the material has had a fair trial, that Native officers of the Madras Army have been carefully selected for promotion, have been instructed by competent British officers, and have been made to exercise the responsibility which devolves upon a troop or company commander, the only answer is, that it has been shown by the statements relating to the Bengal and Bombay armies, that Hindustanis of all classes have been capable of exhibiting the qualities which the Madras soldiers are represented as incapable of attaining; and if we consider also the performances of soldiers of Southern India in former days, there is, I believe, every reason to hope that the Native officer of the Madras army, under proper selection and training, may be able to perform the limited part required of him as a troop or company leader.

It will be remembered that he will have the support and encouragement of his wing officer and wing subaltern, besides that of the staff of the regiment.

REPLIES from the COMMANDER-IN-CHIEF, BOMBAY.

Sir Charles Staveley considers that the system of supplying officers from British regiments for the Staff Corps has until lately supplied a superior body of officers, but hears that they do not settle down to their regiments, but have a hankering after civil employ.

That officers could not be advanced in the same regiments without hardship to the claims of other officers who may be temporarily without a permanent regimental position, especially officers who have been selected for staff employ, and have fulfilled their term of five years.

The system in the Bombay Army for the last three or four years has been seniority combined with fitness. This adapts itself readily to a service that has hitherto been a strict seniority service, and, as the returns testify, the general idea that officers are too often changed about from regiment to regiment is fallacious.

1. This is a more favourable opinion than that of Sir F. Haines; the question has been fully discussed in the papers relating to the Bengal Army.

2. This question has also been discussed in the Bengal papers. The measure proposed by the Adjutant-General of Bombay of forming battalion regiments would not in itself remedy the irregularities of promotion. The number of officers in the battalion regiments is about the same as in the old regular regiments of the army, in which there were often great irregularities of promotion.

3. The claims of officers unprovided with regimental positions must be considered, but they should not be considered at the expense of the claims of regimental officers, the efficiency and contentment of regiments, and the principles which are necessary for the government of the Native army, namely, to preserve the connexion between the Native soldier and his European officer.

4. An officer who has been absent on staff employ for 10 years can scarcely have any knowledge of the men of his regiment, and can hardly return to it without not only disheartening the officer who for so many years has been filling his place, but those in the grades below him in succession. Further, he also has fallen out of practice in regimental duty.

5. I may give a few instances out of many. A Major, who had been in the police, returned to his regiment for the Punjab campaign. In the action of Chillianwala it was found that the enemy had penetrated to the rear of the regiment. The Major, being in command of the regiment, ordered it to "change front to the rear, on the centre," a complicated movement which would have led to the destruction of the regiment if charged during the operation. Fortunately the Adjutant remonstrated, and the Brigadier ordered the regiment to turn to the "right about," and immediately charge the enemy. In another instance the officer had been for very many years the popular postmaster of a central station. He rejoined his regiment about the time of the annexation of Scinde. His regiment was ordered there. His health was good enough to enable him to sit in a quiet cantonment, but active service was impossible. He immediately obtained leave on medical certificate. At this time some regiments refused to go to Scinde, others mutinied. The sepoys of this regiment, which was fortunately a very good one, merely said, "How are we to go if the Colonel Sahib does not come with us?"

6. An officer from a civil department joined to take command of his regiment in Affghanistan. On the first occasion of his meeting the enemy he was urged to charge. He had no want of personal courage, but was irresolute, not knowing what to do. At length the enemy got into a position above him and prepared to charge; he then began to form line in order to charge up-hill, but the Affghans charged down on him and swept away his regiment with very considerable loss. Two of these instances have been related by officers present, and the third I was personally cognizant of.

7. One officer returned from police employ, having groundless apprehensions of resistance, ordered a guard with balled cartridge and handcuffs, for the arrest of an officer of his regiment for delay in furnishing copies of some letters.

8. An officer who had returned to Europe intending to retire, and had entered into banking business

in England, unfortunately failed, and returning to India was placed in command of a regiment, to the infinite disappointment of a very experienced second in command.

9. Another officer passed out of the Survey Department on account of "inaptitude." He was placed in officiating command of a regiment. On a mess question in which he was concerned personally he convened a mess meeting to discuss the matter, but on the officers exercising their undoubted right of opinion he silenced them with threats of arrest, and on returning to his quarters cancelled the order for the mess meeting, and said that he had assembled the officers to receive his orders. The harmony of the regiment was never restored during his incumbency.

10. Many similar instances could be adduced, if it were necessary, to prove that officers, who have been long away from regimental employ, can very seldom rejoin in a high regimental position in the field, and at a moment's notice, without danger; and that under any circumstances, after a long absence, such rejoining even of the officer's own regiment must have a disheartening effect on those whom he pushes down the ladder, and still more so if it takes place in regiments to which they are total strangers.

11. In the views above stated I by no means ignore the opinion which I have elsewhere expressed in favour of the reserve officers in civil and political employment. There is ample room for those of junior standing to reinforce the regiments in reserve, where they would regain their military training; those of the higher grades might be employed to raise local corps, to hold important points of communication, to command depôts, to supplement the commissariat, to hold military command of stations or districts where their administrative power would come into play. There are some men who never lose their military knowledge.

The excellent services of many officers taken from civil and political employ, during the mutiny and the previous campaigns, can never be forgotten.

12. Appendix C. of the Bombay papers gives the return of officers' services with their regiments, as commandants and seconds in command, but does not contain all the information that would be necessary to give full value to the return as showing "the fallacy "of the assertion that officers are frequently shifted "from regiment to regiment."

13. There were no doubt reasons which appeared sufficient to the authorities at the time to justify the appointments made, but it may be observed that in the 24th Native Infantry, for instance, the second in command had been 28 years with the regiment, was of 30 years' service, but was superseded by the commandant of 31 years' service, who apparently had never served with the regiment previously.

14. In the Appendix C. (pages 2 and 3) it will be found that there are nine regiments of which the commandants have been for very short periods with their regiments, the minimum being four months, and the maximum only two years and eleven months.

15. Of the thirty Bombay regiments, about one third are commanded by officers who rose in the regiments, the remainder are transfers, it is presumed, on account of seniority.

Thus there appears reason why there might be complaints on the part of the officers superseded, and of all the others whose hopes of promotion were deferred to a remote future; and these disadvantages are doubtless ascribed to the new organisation, whereas a considerable part of them might have occurred in the old regular army. The field officers in the old army were all in one general list for promotion. When a vacancy in the lieutenant-colonels

occurred, the senior major of the army was promoted to the vacancy and succeeded to the regiment vacated by the lieutenant-colonel, so that a lieutenant-colonel was rarely in command of the regiment in which he rose.

16. It appears therefore from paragraph 15 that the Bombay Army has a larger proportion of officers commanding their own regiments than would have been the case in the old army. If the army lists of Bombay are referred to for the last five or six years, it will be seen that the officers in many regiments have been almost entirely changed, seldom more than two of the original cadre are to be found in any regiment, and where they are so found they are not unfrequently officers who have been restored to their old regiments—indicating not only the endeavours on the part of the Commanders-in-Chief to repair the evil of officers being severed from their old regiments, but that the change of the personnel of the officers has been greater than is now at first sight apparent.

17. So that though Sir Charles Staveley is of course perfectly accurate in saying that officers are not now frequently shifted from regiment to regiment, yet in the occurrences of the past there is ground for the complaint of frequent change in regiments; there is ground for complaint that officers of considerable standing were superseded in their own regiments by outside seniors; and ground of complaint by younger, though far from young officers, that their prospects of promotion to higher regimental positions are very distant.

18. These causes of dissatisfaction are probably entirely attributed to the Staff Corps and the new organisation. But although much of the change in regiments is due originally to the sudden introduction of a new organisation, and to the rules which severed officers from the regiments in which they had risen, when they went to England or attained certain grades of rank, and when they left their regiments for any staff employment, yet much also was due to the rules left by the old system, and the application of seniority without regard to the claims of regimental officers.

But the system of bringing officers from the unemployed list to officiate is very objectionable.

19. Experience on this side of India does not entirely accord with this opinion. When there is an officiating vacancy which it is not expedient to fill up regimentally, it has often been found very advantageous during the absence of the permanent incumbent, to appoint to it a good officer who leaves his impression on a regiment during the two years of his officiating, which greatly benefits it, and instances are of recent occurrence in which the temporary officer has been regretted and his services gratefully remembered by the commanding officer of the regiment in which he officiated.

But it is most desirable that the promotion should go in the regiment whenever possible.

The proportion of senior to junior officers is injurious. The officers as a body are too old.

20. On this point there can be no difference of opinion. In the old army an officer on arriving at the rank of colonel vacated his regimental employment. He might then reside in India on his Indian pay and allowances, or in England on the English pay of his rank, until he succeeded to his colonel's allowances.

In the present army there is no landmark to limit the period of regimental employment, until the officer's arrival at his colonel's allowances. The state of the Army Lists of the three Presidencies shows that some rules to create such a limit are absolutely necessary to secure a proper flow of promotion and the efficiency of the service. If such rules can be combined with inducements to retire, their imposition will be received with the less complaint.

The Native officers are competent to command their troops and companies on ordinary field days in time of peace, but Sir Charles Staveley would not feel the same confidence in them that he would in British officers.

21. That the same confidence should be felt in the Native officer as in the British officer generally could not be expected. The intelligence and military capacity of the one have, of late years, been highly cultivated in a variety of ways, and he has all the traditionary incitements of his country and his rank to maintain a high standard.

But the question is not whether the Native officer can be made as good as the British officer, but whether he can be taught to command a troop or company in war sufficiently well, under the supervision of his wing officers and the regimental staff.

The officers of the three armies, who have never believed in the ability of the Native officer, and consequently have never thought of selecting the best men, and cultivating and bringing out their intelligence and capacity, would give an adverse opinion.

On the other hand, the opinion of the many distinguished officers who have tried the Natives of every class of Hindoostan, and have proved their capacity in many a hard service, appears to me a far weightier one, and it is supported by all the histories of the actions of the Native armies in India.

22. Can it be believed that the countries which produced the armies of Hyder Ali and Tippoo, and which gave birth to Savajee and the gallant band by whose aid he conquered and re-established a vast kingdom; can it be believed that the race which produced a Holkar cannot now give so many as two men out of a hundred possessed of courage and intellect enough to command a troop or company, under every circumstance, if they are properly trained by officers capable of giving the necessary instruction? History and practical experience are opposed to such an opinion.

With regard to both the Madras and Bombay Armies, the great point of difference is the question of the sufficiency of the number of European officers and the capacity of the Native officers for the positions assigned to them. My knowledge of the Madras Army is less extensive than of the other armies, but what I have been able to observe of the troops whom I have met on service, especially the sappers, and during my visit to the Madras Presidency, I should certainly not place either the Native officers or soldiers at a lower standard of intelligence or ability than those of the other armies. The men seemed excellently drilled, smart under arms. They skirmished intelligently, but I confess that the Native officers did not appear to me to be treated generally as Native officers are treated on this side of India, that is, with the courtesy and consideration due to gentlemen holding commissions. I may have been misled by appearances, but such was my impression.

It is stated that they mix familiarly with the rank and file; this is to be corrected by regulations and discipline, and by raising the social position of the Native officers. It is a difficulty that has to be corrected in all armies in which officers rise from the ranks. In the British Army one of the reasons which lead men to refuse the grade of non-commissioned officer is, that they would be compelled to separate themselves from their comrades and associates.

It is of course necessary that the same pains should be taken to teach the Native his tactical work as is taken with the European officer.

The idea of military schools or colleges has been suggested; but if we enter on a high class of education we shall never be able to compete with the emoluments offered in civil life. An ordinary clerk is better paid than a Native officer of the infantry; and if we educate too highly we shall be unable to satisfy either the social wants or the ambition of the Native officer. The amount of education contemplated in the regimental schools is sufficient for our purposes.

The material of the Bombay army appeared to me to be extremely good. The Mahratta is a sturdy soldier, never tired of drill or soldiering; of the agricultural class, he comes from a rough country, which requires toil to gain a livelihood.

There is a considerable mixture of the materials that supply a large part of the Bengal army, viz., Hindustanis and Sikhs.

I am much better acquainted with the Native officers of Bombay than those of Madras. The education of the Bombay army is more advanced than in either Madras or Bengal. I met many Native officers who left most favourable impressions on me. I have the fullest confidence in their ability to rise to their position, if fair opportunity is given to them.

The letter of the Adjutant General of the Bombay army, dated 9th November 1872, states that education certificates are required, as in the British army, as qualifications for the non-commissioned grades, which is a step in the right direction.

It is stated that after a certain period in the commissioned ranks there supervenes a certain apathy with regard to duty. This would indicate that they have not really been invested with their proper duties sufficiently to secure their continued interest in them.

It is a complaint that has been noted before, and must be met by keeping something before them to be gained. The same remark has been even applied to European officers under similar circumstances, of not having responsible duties enough to secure their interest.

The letter of the Inspector General of Musketry, which I have annexed, shows how much assistance the Native officers can give in the musketry training of the men.

It has been often said that the excellence of certain irregular regiments, in which there were but three British officers, is no proof that the same excellence could be attained by the present regiments with seven officers. I should be sorry to pay such a bad compliment to the mass of the officers of the Indian armies. The idea is quite fallacious. A few may have been selected officers after a campaign had brought them to the front, but the real histories of the eminent soldiers who have distinguished themselves as leaders of irregular troops, would show that their original selection arose from some family or friendly interest, and that the service made them. The freedom from antique trammels gave scope to their abilities.

The question now to be decided is, whether the Staff Corps and the present organisation, which are inseparably linked together, have sufficiently succeeded to justify their continued maintenance?

Whether the Bengal Army shall continue as at present, subject to improvement but not to radical alteration?

Whether the armies of Madras and Bombay shall continue on the present organisation, or be changed either to the old regular system, with the full complement of 24 or 26 officers?

Or, to the modification of it proposed by Sir F. Haines, with 16 officers?

Or, to the three-battalion regiment, with double company organisation, of Sir Charles Staveley, with 36 officers?

Or, to the three-battalion regiments of Brigadier General Aitcheson, with 19 officers.

With regard to the Bengal Army, it must be considered that the present organisation has been in existence for 13 years, and that the majority of the regiments have never had any other; that the many distinguished general officers who have inspected the Bengal regiments, have been unanimous in reporting their high state of efficiency.

That a change to the old regular organisation, or to any of the plans proposed, would involve a recasting of the officers of every regiment, and a renewal of the disturbance of regimental interests, which have now in a great measure settled down into a consistent course.

That it would involve a return to the former scale of pay. This would make little difference to the commanding officers, but the wing officers and subalterns would suffer considerably, and I apprehend their views have not been represented in the matter.

The ground for their staff allowances are, that they have more important charges than the captains and subalterns of the British army; if that valid ground were removed, the difference of pay would not be tolerated.

The expense of each of the new plans proposed would exceed that of the present one. In whatever form they may be put, Sir C. Staveley's plan will partially, and the other plans entirely, deprive the Native officers of the position which they have more or less held for so many years.

This last appears to me the most serious and important objection of all, and one which would render the change a very dangerous one. I am, therefore, of opinion that it would be the wisest and safest course to adhere to the present organisation, but resolutely to persevere in removing the faults which have been admitted to exist, and to adopt the improvements which have been shown to be necessary.

The most important of these is to continue to relieve the service, in the most just and considerate manner, of the British officers who are too old for their regimental positions; and to raise the status of the Native officer to correspond with the position assigned to him.

I regret that some of the views which I have expressed differ from those of the Commanders-in-Chief of Madras and Bombay, for whose opinions I entertain much respect; but I cannot believe that the Native officers of the armies under their command would fail in attaining the same standard that has been arrived at by Native soldiers of similar classes, in other parts of India, if they had the same opportunities.

NAPIER OF MAGDALA.

Simla, 28th October 1875.

STAFF CORPS CANDIDATES.

Simla, October 1875.

I consider that it may be advisable to defer taking any steps to increase the supply of candidates for the Staff Corps until the Native army question shall have been disposed of.

It is very desirable to have a sufficient supply of young officers, but considering that the demands for furlough will probably diminish, and that the regiments could get on with six officers, it does not appear that there is such urgency as to hurry the Government into any exceptional measures, until some approximation to the demand shall have been arrived at by the settlement of the Native army question.

If an extraordinary supply should be resolved on, we may first take all the existing candidates on the lower standard, on the condition that they should pass the higher standard within the year.

There is, it is believed, a considerable pressure on the part of the parents, who wish their sons to enter the Staff Corps, to have them posted to Indian regiments, to which the number allotted must necessarily be limited.

Should this measure prove insufficient, his Royal Highness the Commander-in-Chief might consent to candidates from British regiments in England and the colonies volunteering for the Staff Corps, rather than that the present system should be broken in upon.

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